IRON AGE

editorial

What's Ahead?

LET'S say goodbye to pretty words and phrases about the New Year and what to expect. It will be some time before we again reach that blissful period when we work for the love of it and for "gracious" living.

The going will not only be rough—it will be something we have not seen before. We will have a war without a declaration. We will have controls and directions that are foreign to us. But we will have them in the name of democracy. If we do things right it will be worth the price.

We will have to clean up our own house. Before 1951 is out we will know the hollowness of politics as usual. It will come the hard way. We will know soon that business as usual is an empty phrase—when we are an outpost for freedom.

We have a lot of things to overcome this year before we can be the knights in shining armor fighting the crusade for freedom—whether it be a declared war or a hot-cold undeclared war of defense.

A $50 billion defense program is more than six times the total gross sales of the whole steel industry in one year. It is not necessary to dwell here on the details of what will happen to steel and other metals.

At least 50 pct of total steel output will be going for direct defense and essential civilian needs by the middle of the year. That means close to 60 or 70 pct of flat-rolled steel will be slated for those uses.

When Washington makes up its mind on what the armed force needs it might be 5 or 6 million men instead of 3½ million. That means we will be using in industry older people, women, pensioners and anyone who can work.

We haven't seen anything in taxes yet. They will be much heavier. There will be little or no profit before this debacle either straightens out or topples over everything.

A tight hold will come on prices and wages. Attempts will be made to do it the easy way. They won't work in the period we talk about—late 1951 and 1952.

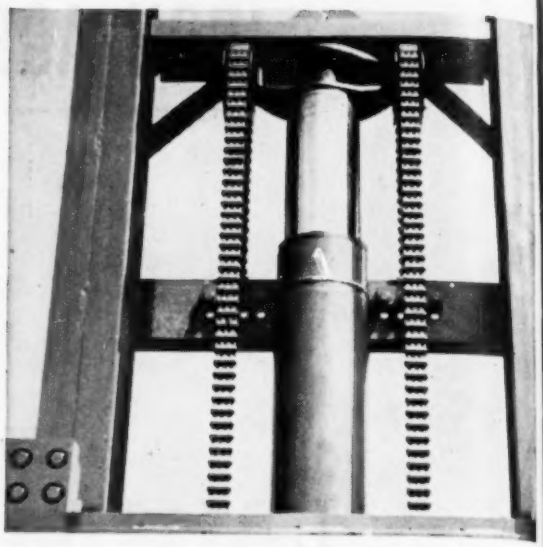
Business and labor will have to get along. Business and government will have to cooperate. This year we put up or shut up.

Tom Campbell

Editor

Giant fork truck





Morse cable chain like that in truck's lift mechanism is available in four pitch sizes, with average ultimate breaking strength ranging from 3,900 to 49,400 pounds.



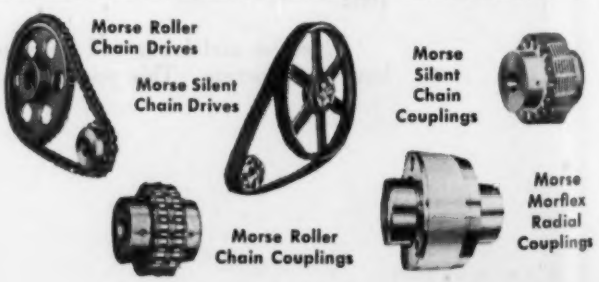
Tough-built Morse roller chain drives give you on-the-job stamina and long life. They use teeth, not tension. Morse roller chain drives are positive, can't slip. They are 99% efficient.

Ask the Morse Man for power transmission information!

100 Morse Branch Offices and Distributors to supply your power transmission demands.



From coast to coast there are more than 100 offices, representatives and distributors of Morse Power Transmission products to give you quick information and service when you want it—where you want it. *Ask the Morse Man first in any case!* Check your classified phone directory under **"Power Transmission"** or **"Chains"** for the nearest Morse Man.



ANNUAL REVIEW

IRON AGE *newsfront*

news methods and product forecast

► A greatly expanded merchant shipbuilding program is expected this year, despite some initial setbacks. Many of the ships now in reserve are too slow for use in an emergency. This will mean a further increase in steel plate production at the expense of sheets and strip.

If the Navy expands its building schedules, production of brass and bronze ingots may surpass that of the peak war years of 1943 and 1944.

► Fabricated copper will be in tight supply during 1951. Production will probably consume all available materials. Finding substitutes for copper is one of the toughest jobs there is. Copper fabricators can expect a year of steady production, after some initial dislocations due to government controls.

► The machine tool industry's 1951 order volume will probably total $1 billion. Most machine tool companies rated orders are less than 10 pct of their total but 75 pct or more could be rated as industry converts to defense production.

► Estimates are that stainless steel production in 1950 was almost 25 pct higher than the previous 617,378 ingot ton record set in 1948. This despite the handicap of alloy shortages during the last half of the year.

► The aluminum pinch will take a big bite out of automatic transmission production this year. Extensive plans have already been made to substitute gray iron for many of the aluminum castings now in production.

► Before the year is out new plants will be built for cold extrusion of steel products. Most of the work is expected to be in ordnance items. Details will be kept under wraps because the steel savings in the process would be relatively more valuable to the enemy than to the United States.

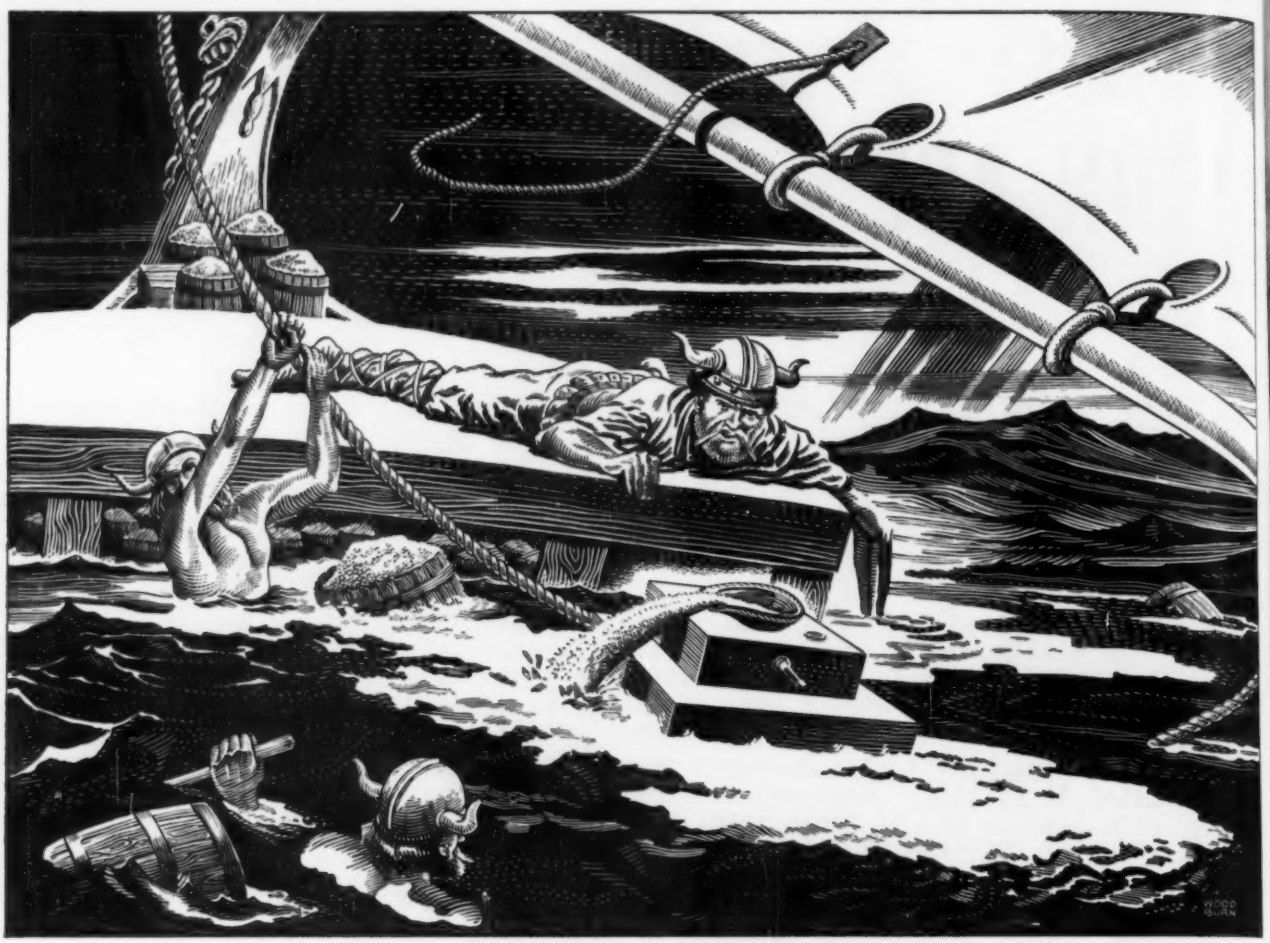
► Titanium will become firmly established as an engineering material during the coming year. Production will be greatly increased; prices may be reduced; new melting and extraction methods will be perfected. Reliable phase diagrams of ternary alloys and faster methods of analyzing for oxygen and nitrogen will emerge.

► Power steering for passenger cars--being introduced on the new Chrysler--is regarded in Detroit as one of the most important engineering developments since the automatic transmission. The wheel can be turned with one finger even when the car is standing still.

Chances of completing new high compression auto engines for 1952 models grow dimmer with each forward step in the arms programs. Currently, eight new high compression engines are tooling but only Chrysler is ready for production.

► Mandatory price controls are almost a certainty just as soon as an enforcement staff can be built up. The Economic Stabilization Agency now has a staff of less than 400, contrasted with OPA's administrative and police force of more than 20,000.

► New continuous casting units will be publicized this year, firmly establishing the soundness of making steel by this technique. Savings as high as $100 a ton on some grades are indicated.



Why the sea is salty

IN Norse mythology, a poor man got a magic mill from the elves. With it he could grind whatever he wanted--food, clothing, furniture, and best of all, gold. Of course, the poor peasant's lot changed from poverty to riches.

An envious brother borrowed the mill. He commanded it to "grind herrings and broth and grind them good and fast." But having taken the mill in such haste, he didn't know the magic words to shut it off. He was almost drowned in broth when the brother came to the rescue.

Finally, the magic mill was stolen by a salt dealer, who put it on his ship. Safely at sea, the skipper demanded, "Grind salt and grind it good and fast." Alas, he hadn't learned the control words either. The mill ground salt endlessly, filling all his kegs and his hold, covering the decks and at last sinking the ship. There at the bottom of the sea, so people say, the magic mill still grinds--and that's why the sea is salty.

From time immemorial, men have dreamed about magic mills and schemes to bring abundance and riches. Here in America, today, there are plans that are flooding us with superabundance of certain commodities. But what about the magic words to shut off the mill?

Isn't it time we see the truth in this ancient Norse myth, that "too much" is just as foolish as "too little?" We may well remember this first law of economics: In a *free* market, supply can adjust itself to demand--whether it be potatoes or steel--without sinking the ship. Here is a must job for all thinking Americans.

QUALITY YOUNGSTOWN SERVICE

The Youngstown Sheet and Tube Company

General Offices--Youngstown 1, Ohio

Export Offices--500 Fifth Avenue, New York

MANUFACTURERS OF CARBON ALLOY AND YOLOY STEELS

RAILROAD TRACK SPIKES - CONDUIT - HOT AND COLD FINISHED CARBON AND ALLOY BARS - PIPE AND TUBULAR PRODUCTS - WIRE - ELECTROLYTIC TIN PLATE - COKE TIN PLATE - RODS - SHEETS - PLATES.

IRON AGE *summary*

iron and steel industry trends

STEEL production in the United States during 1950 was about equal to the combined output of all the other countries of the world. American steel companies produced 96,954,000 net tons of steel ingots and castings last year, compared with total world output of 194,154,000 net tons.

Steel production in the United States was more than three times the total output of the Soviet Union. U. S. output, 96,954,000; Russia, 26,500,000. When satellite countries and U. S. allies are included, the weight of steel production is even more heavily in favor of the U. S.

100 Million Ton Year Due

Barring unforseen trouble, the American steel industry can produce more than 100,000,000 net tons during 1951. It is already obvious that steel expansion during the next 2 years will be far greater than was reported to the Secretary of Commerce several months ago.

The 5-year write-off of taxes on defense plants is a strategic factor in increased expansion plans. This inducement to expansion has already greatly stimulated steel company plans.

U. S. Steel Corp.'s announcement of detailed plans for the huge Fairless Works to be built near Trenton, N. J., had been anticipated. The announced capacity of almost 2 million ingot tons is larger than was expected in some quarters.

An integrated steel corporation in New England moved closer to reality last week, marked by formal application for 5-year amortization of facilities. This plant, to be constructed near New London, Conn., would be rated above 1 million tons capacity. Its production would be concentrated in vital flat-rolled products. While the New England Steel Mill Development Corp. indicated that the way was being left open for participation by an existing steel company, it seemed that the way had already been cleared for financial assistance from the government if such help were not forthcoming.

This week it is clear that steel priority machinery is being strained to the utmost. Many steel consumers with DO orders are having difficulty locating a steel source. NPA personnel were being hard-pressed to answer inquiries and help frustrated holders of priority orders.

CMP Only Question of Time

Even sources close to NPA this week are convinced that a controlled materials plan is only a question of time. However, it will take from 3 to 5 months to collect sufficient personnel to adminster the plan.

Mandatory price-wage controls will probably come sooner. The first enforced controls will be on a selective basis. Nonferrous metals, scrap, and steel will probably be covered in that order. Controls will be broadened to include more commodities and industries as the administrating and policing staff of ESA is increased.

This week steel consumers are fighting what may be their last catch-as-catch-can procurement battle for many months. In anticipation of a controlled materials plan they are all vying for available tonnages of "free" steel. Defense and essential civilian steel orders are growing rapidly. Within a few months they will be taking at least one third of total steel output. Of special concern to steel consumers, they will be taking more than half the total production of flat-rolled steel products.

Steel Was Never Healthier

The steel industry enters the new year in the healthiest condition of its history. Earnings for the past 2 years have been highly satisfactory, due chiefly to the high rate of operations. Expansion plans are being encouraged by fast tax write-offs. New raw materials sources are being exploited to meet the demands of stepped-up capacity. All this adds up to more steel.

Steelmaking operations this week are estimated at 101 pct of rated capacity, up 2 points from last week's revised rate.

(nonferrous summary, p. 464)



Investigate

THE ADVANTAGES OF DOING YOUR OWN SLITTING

Send for this book—a practical discussion of important questions as to operation, production and cost.

It contains time studies of output per cycle and per day, in slitting different widths, gauges and coil weights.

It shows how cycle time is affected by these and other factors; advantages of big coils and high speeds for big tonnages; economies of smaller, less expensive, standardized sizes of slitters for the more moderate requirements of most metal working plants.

Cost analyses show how Yoder slitters, operating only three or four days per month, often pay for themselves in a year or two. In addition, they greatly reduce inventory requirements of slit strands and facilitate production planning.

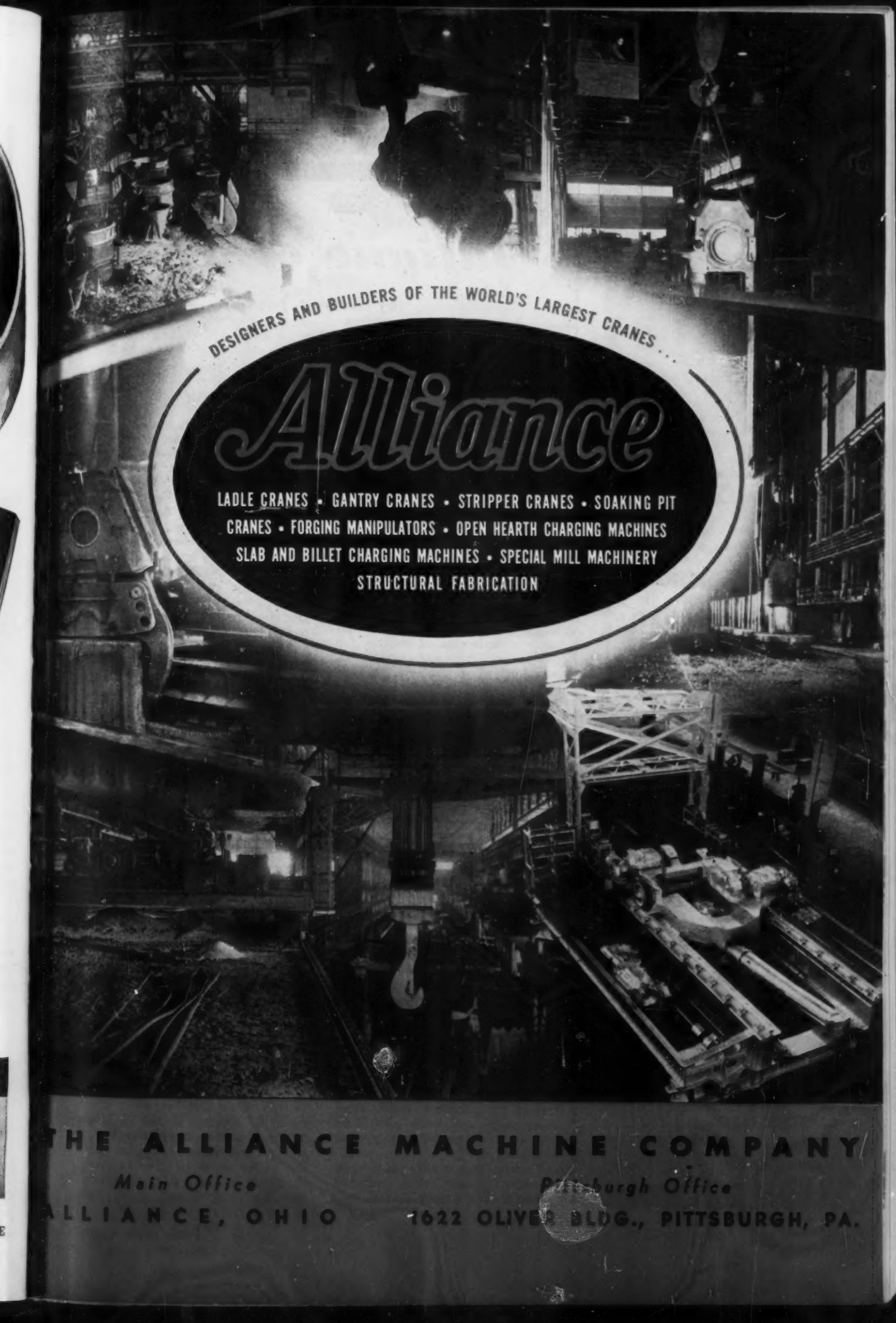
Phone or write today for free copy. Estimates and recommendations for the asking.

THE YODER COMPANY • 5510 Walworth Avenue, Cleveland 2, Ohio

Complete Production Lines

- ★ COLD-ROLL-FORMING and auxiliary machinery
- ★ GANG SLITTING LINES for Coils and Sheets
- ★ PIPE and TUBE MILLS—cold forming and welding

ENGINEERING YODER MANUFACTURING


DESIGNERS AND BUILDERS OF THE WORLD'S LARGEST CRANES . . .
Alliance
LADLE CRANES • GANTRY CRANES • STRIPPER CRANES • SOAKING PIT CRANES • FORGING MANIPULATORS • OPEN HEARTH CHARGING MACHINES
SLAB AND BILLET CHARGING MACHINES • SPECIAL MILL MACHINERY
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THE ALLIANCE MACHINE COMPANY
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FOR FASTER
MASS-PRODUCTION
POLISHING . . .



A close-up of one station in a 12 head lens polishing machine converted for polishing hardened metal projector parts with Elgin DYMO Diamond Compound in the Bell & Howell Chicago plant. Exceptional stability of DYMO at comparatively high temperatures and dependable, predictable cutting made this high production technique possible . . . at a time savings of more than 70%!

ELGIN DYMO
DIAMOND COMPOUND

Elgin Dymo works faster and goes farther because precision graded particles of pure diamond, assisted by an exclusive Elgin vehicle, do the cutting. Elgin Dymo excels in actual shop convenience, too! It comes ready to use, each grade distinctly colored for instant identification, and it is universally soluble to simplify clean-up after polishing.

See how Elgin Dymo . . . available in all Bureau of Standards grades for any lapping or polishing job . . . will reduce your finishing costs and give you better results at the same time. Just mail coupon below for a free demonstration right in your own plant!

- - MAIL THIS COUPON TODAY - -

Yes, I'd like to see how DYMO speeds production line polishing.

NAME_____

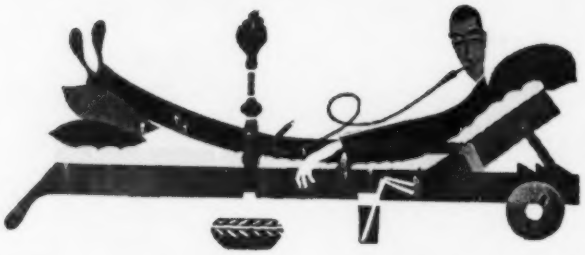
POSITION_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

INDUSTRIAL PRODUCTS DIVISION
ELGIN NATIONAL WATCH CO.
ELGIN, ILLINOIS



fatigue cracks

by charles t. post

The Look Back

Not so long ago that we can't remember, this first issue of each year was devoted to ponderous reports of what had taken place in the past 52 weeks and studded with brave visions of the year ahead.

Unfailingly, the description of the year past had the same relation to reality as a poor color photograph. If it was a good year, the annual reviews were as faultless as an obituary write-up. A bum one never was painted quite so black as it really was. Speak no evil of the dead. Never must future generations suspect what fools we really were.

Vistas of the future always are fenced with caution by those who make a profession of writing for publication. Amateur seers, business leaders particularly, tend to rosy predictions. Dusting off the Jan. 7, 1932, issue, you gain the unmistakable impression that prosperity was just around the corner, notwithstanding the paucity of paid advertising that is a barometer of business expectations.

This year the brains department has been hobbled in its appraisal of the past in the assumption that 1950 can be interpreted in as many different ways as there are readers of your favorite family journal. The logical course, then, is to give the readers as many facts as they can stuff down their gullets, and let them draw their own conclusions. Sitting here on Jan. 4, 1951, the odds against a successful forecast of the year ahead are slightly greater than those against naming the winner of the Kentucky Derby in 1954. As for controlling the future, well—do you have Stalin's ear?

Destiny's Child

Our own conviction as to the futility of planning ahead came many years ago, when a brilliant future at the bar (of justice) was thrust aside.

We were still in knee pants when a judge, a family friend, watched us win a fluke victory against parental authority, stating our case with what seemed to us to be complete logic. Of course, if the judge had not been present, and had not dad wished to spare him embarrassment, the decision on our case would most certainly have gone the other way and sentence would have been executed immediately with a razor strop.

But the judge saw us win and clapped us on the shoulder. "There's a boy with a great future as an attorney," he predicted. Thereafter, for years and years we didn't have to worry about what the future held for us. We were going to be an attorney.

When we hit college, we discovered that reporters on the college paper got free tickets to all the local events. That caused a slight detour in our plans, but once we had our bachelor's degree we headed towards law school without the slightest hesitation.

Not until we were immersed in legal tomes and mock trials did we discover that the law for centuries had consisted of eternal bickering over trivial points of limited interest. Right then and there we wiped clean the crystal ball of our future, excused ourselves from this contentious atmosphere, fell into the arms of your f.f.j. and stopped worrying about the future altogether.

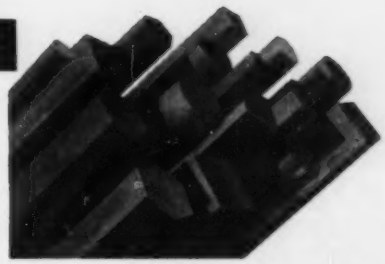
Now, our oldest girl is going to be a doctor, the boy an engineer, but the littlest angel gives evidence of deeper thought.

"I'm going to catch me a nice man," she confides, "and settle down and take life easy." Her mother says that even this is not an accurate appraisal of the future.

Here You See Them

Every once in a while some loyal reader of your f.f.j. writes us that he sits down and "reads it from cover to cover." If we get any letters like that about this issue, we'll have a strong suspicion that the writer either is straying from the truth or has a darn sore seat. But we do feel, and hope, that

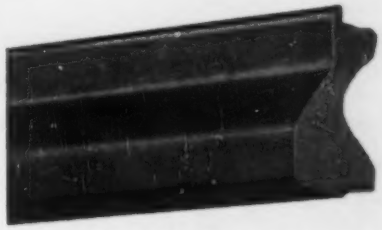
Brass and Bronze Free Turning Rods



Produced in all sizes from 1/16" for small diameter rods up to 10" diameter for cast and turned.

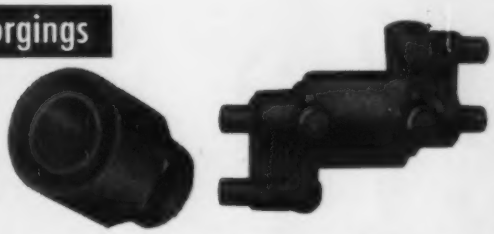


Extruded Brass Shapes



Squares, hexagons, half rounds, half ovals and special shapes. Hexagons up to 4½" and rectangles up to 5½" (maximum diagonal).

Brass and Bronze Forgings



From ¼ oz. to 100 lbs. in weight. Produced to meet specified physical properties, corrosion resistance and finish.

Brass Pressure Die Castings

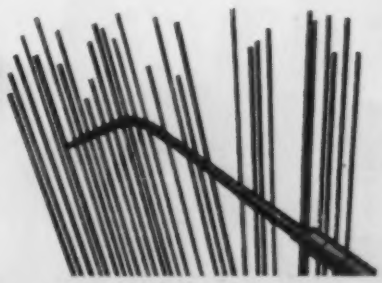


Parts having thin sections and intricate cored parts readily produced. Titan die castings have better finish, stronger structure, and greater accuracy than sand castings.

Brass and Bronze Products

Write for descriptive catalogs on any of these products.

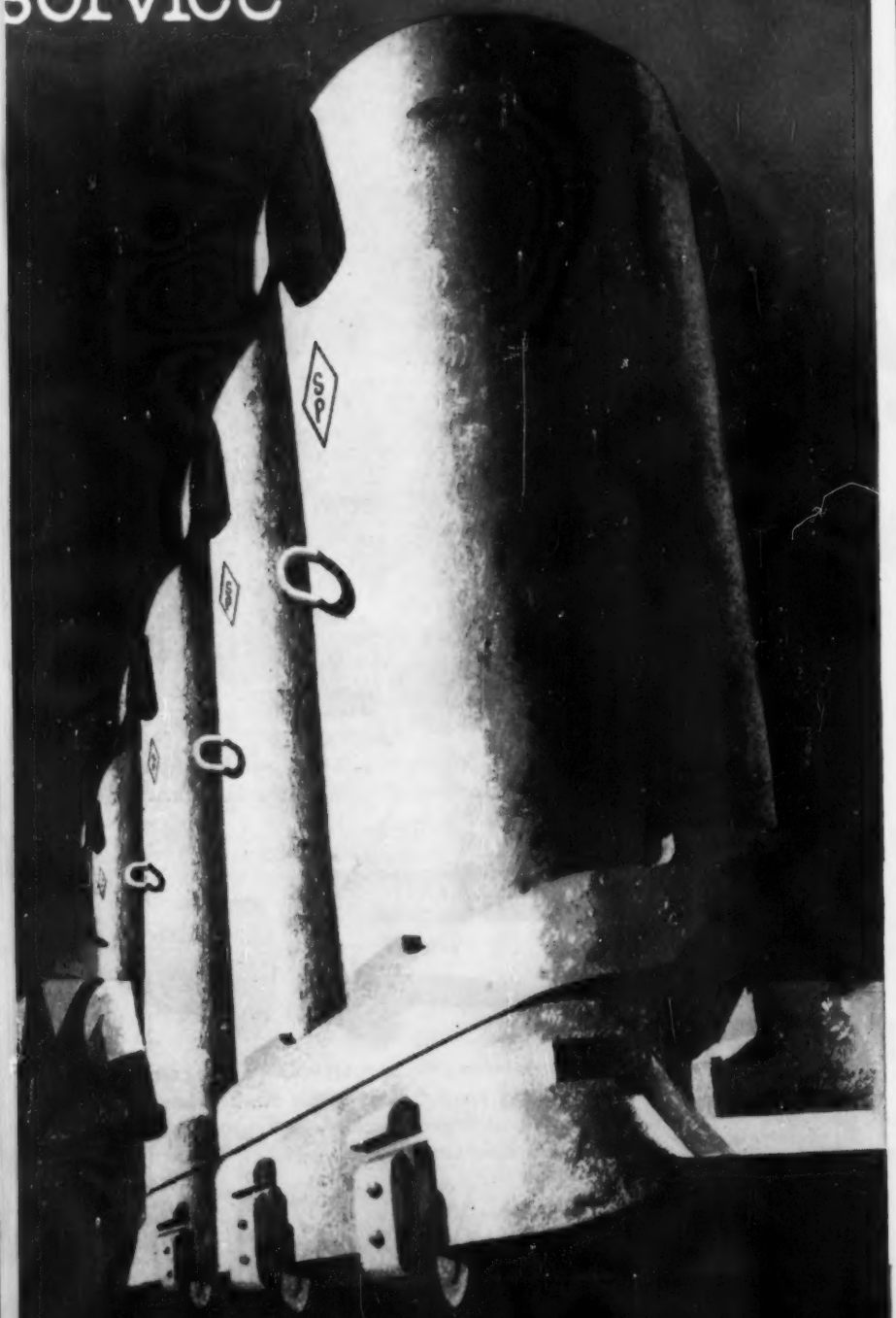
Bronze Welding Rods



Titan's exclusive double deoxidation process assures ductile, high-strength, non-porous welds.

Titan
Metal Manufacturing Co.
GENERAL OFFICES AND PLANTS: BELLEFONTE, PA.
Offices and Agencies in Principal Cities

experience
skill
service



three priceless assets
behind every
SHENANGO·PENN MOLD
SHENANGO-PENN MOLD COMPANY OLIVER BUILDING PITTSBURGH, PENNA.

FATIGUE CRACKS

Continued

nearly all the readers will have this issue close at hand the rest of the year and will be looking at it many times.

We explained it to the advertisers in terms of the Sears Roebuck catalog. "If you've ever sat down with a Sears' catalog," we told them, "you can appreciate the hypnotic pull created by a vast display of varied products. In the IRON AGE Annual Review, the reader sees advertising at its best, with each advertiser making a special effort to please readers holding high expectations.

"Like Easter Sunday at church, nearly everybody 'attends,' whether or not he's advertised during the past year. Here are all the celebrities supplying metal-working, with comparisons among them to be expected. In no other issue of any magazine, or any specialized metal-working catalog service, is there such a dazzling array . . . This is the issue to catch the attention of the reader looking at advertising as a feature attraction rather than just an adjunct to editorial material."

All told, you will find 368 pages of advertising, most of it excellent educational reading. Whenever you get discouraged about America's military sinews, take a quick tour through the issue.

Signs of the Times

Clem Caditz, Northern Metal Products Company's irrepressible president, has posted this notice in the shop:

NOTICE

To All Doctors and First Aid Men

Any steel slivers removed from the fingers of our employees are to be carefully handled, stored and inventoried as to gauge.

In the event any slivers turn out to be 16 or 18 gauge H.R. or C.R., please notify our material control department immediately.

Your cooperation in this regard might keep a production line going.

Puzzlers

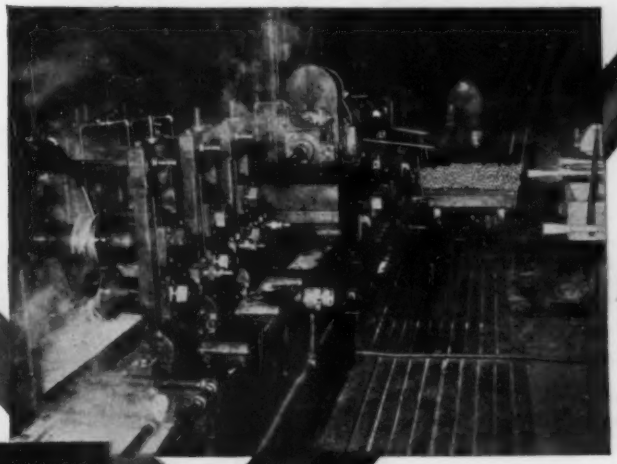
Instead of the usual puzzler for this issue, we'll merely give you a scripture taken from a letter submitted by a reader associated with one of the country's leading armaments manufacturers: "Enclosed is a solution to the problem. I have checked the calculations by working the problem by a different method, and the result is the same. To date this problem has only cost the ———— Co. about $1,500." Now get back to work before the rearmament effort folds up.

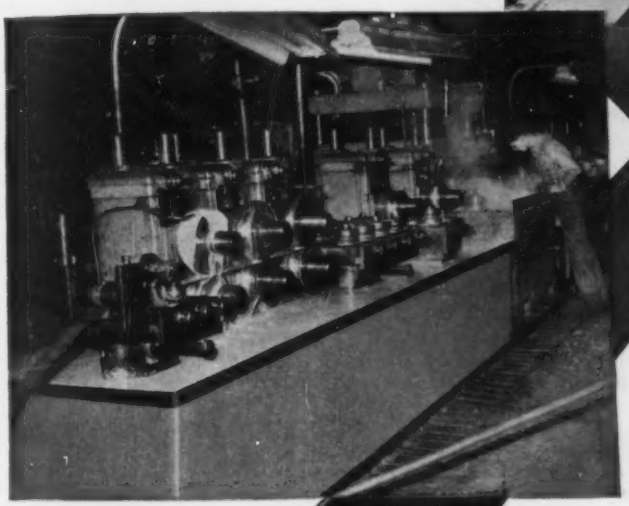
LACLEDE TUBING

ELECTRIC AND GAS WELD

QUALITY STEEL

PLUS CONTROLLED MANUFACTURE





Starting end—one of the battery of Laclede Tube Welders.

PRODUCES THE BEST IN STEEL TUBING

In the manufacture of electric welded tubing—as in all other Laclede steel products—excellence of quality is assured from open hearth to finished product.

LACLEDE

MILLS: ALTON, ILLINOIS • MADISON, ILLINOIS

St. Louis, Mo.

FURNACE PROBLEMS
are Frequently Solved



by REMMEY
RM
SEMISILICA BRICKS

When heating furnace roofs, open hearth regenerator roofs and hot blast stoves are operating in the temperature range of 2200F.-2700F. for sufficient time to cause "First Quality Clay Bricks" to spall and vitrify or sag—and where the performance of silica bricks is hindered by shutdowns and severe temperature changes, a need is created for REMMEY RM Semisilica bricks.

If your furnace problem falls in this category, Semisilica bricks are the answer . . . specify REMMEY RM Brand SEMISILICAS.

REMMEY

Dependable Refractories

RICHARD C. REMMEY SON CO.
Philadelphia 37, Pennsylvania

Dear EDITOR

letters from readers

Stone Tome

Sir:

It is part of the writers duties to purchase industrial diamonds in 2 to 3 and 5 karat size, mounted. It will be very much appreciated if you can furnish any literature or refer us to some good authorities, that will give technical advice on how to select diamonds for dressing wheels of all grades.

K. C. PHELPS
Alameda, Calif.

We haven't heard of any book that fills the bill exactly on selection of diamonds for dressing wheels, but the closest thing to it is the book "Diamond and Gem Stone Industrial Production" by Paul Grodzinski, published in London in 1942. In this country it is available through Henry Paulson & Co., 131 S. Wabash Ave., Chicago, at $4.95 per copy. It is quite a complete work on all phases of selection and use of industrial diamonds, and contains some charts which may be helpful.—Ed.

Currently Appropriate

Sir:

Our association publishes a monthly paper called *The Integrator*, and from time to time like to reprint editorials from some of the professional magazines.

You published in your Oct. 26, 1950, issue an editorial by Tom C. Campbell entitled "Take Care of Your Key Men." Since the article strikes us as especially appropriate at this time, we are asking your permission to reprint the editorial.

C. R. BROTHERTON
Editor, The Integrator
General Electric Engineers Assn.
Schenectady

A Reason For It

Sir:

In the Nov. 23, 1950, issue under the heading Briefs and Bulletins, the following item is included: "Urgent Business?—Some steel people who regarded speedy fulfillment of DO orders as an urgent matter have been given cause to wonder. Recently an alloy producer completed an order for stainless steel plate for the atomic energy program. When he asked for shipping instructions, the producer was advised to ship the steel to a warehouse."

You may be interested to know that the General Electric Co., which is the prime contractor for operations of the Atomic Energy Commission at Hanford, is purchasing alloy steel for the atomic energy program and, in many cases, having it shipped to a warehouse. This is because the steel is often being ordered in bulk in sizes and shapes which can be easily produced by the mill, yet is required in special sizes by the fabricators of equipment and vessels.

We have made arrangements that our orders are shipped to a central warehouse in the east where they are cut to size and rerouted to these fabricators in accordance with their requirements. This frees the mills from the necessity of breaking bulk orders down into large numbers of small shipments and tying up their vitally needed equipment with the work of making up small quantities of special sizes.

While we have no direct knowledge that the article refers to our activity, we are sure that the effect of the above quotation will be to do us a disservice. If the article does, in fact, refer to our operations, I think you will agree that the inclusion of this article has done a disservice to the atomic energy program and has placed the AEC in a poor light. Again assuming that the article referred to our activity, both of these regrettable conditions could have been avoided by a check of the facts.

F. K. McCUNE
Assistant General Mgr., Nucleonics Dept.
General Electric Co., Hanford Works
Richland, Wash.

The item was not checked because, from past experience, we have found that AEC apparently prefers to neither confirm nor deny most reports on atomic energy. In this case, such a check might have produced a clear answer and we would not have run the item.—Ed.

Ground Iron Powder

Sir:

I was very much interested in an article appearing in the Nov. 3, 1949, issue on the subject of domestic iron powder. I have been making a study of finely ground iron produced by abrasive wheels. This, of course, is mixed with the abrasive of which the wheel is made.

This study was being made in the interests of construction. We are anxious to learn all we can about "iron dust," as mentioned in the account. Where can we procure a sample of say 2 or 3 oz.? Kindly refer us to some paper, books or what not that discuss this subject.

G. R. HOUSTON
Birmingham

There are several books on powder metallurgy, including descriptions of the methods of producing and classifying iron powders. Two of the best known are: "Powder Metallurgy," by Dr. Paul Schwarykopf, MacMillan Co., New York, 1947; $8.00. "Powder Metallurgy," edited by John Wulff, published by American Society for Metals, Cleveland, 1942; $7.50.

Iron powder produced by machining is relatively coarse in comparison with the chemical and electrolytic powders; unless further reduction is made, it is generally



TAKE A CLOSE LOOK AT BRANDT

A call to Brandt immediately places several hundred thousand square feet of facilities . . . giant equipment . . . and a versatile organization at your service. No matter what the size of your production headache . . . Brandt knows what to do for it! . . . Send us a sample problem! Brandt engineers will expedite your inquiry.

SEND US A SAMPLE PROBLEM

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strip fed from coils

FOLLANSBEE COLD ROLLED STRIP is furnished in continuous coils for direct feeding into automatics. This time-saving method of supplying material to stamping and forming machines is a big step toward increased production.

turns an automatic machine

FOLLANSBEE COLD ROLLED STRIP is widely used in plants manufacturing toasters, tractors and television equipment where high-speed automatic machines turn out parts in astronomical numbers. Continuous feeding from coils is essential to maintaining volume.

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FOLLANSBEE COLD ROLLED STRIP is furnished to specification—custom-made strip steel in coils suitable for a multitude of productioneering operations. Call the Follansbee Steel Representative nearest you for details on temper, finish, coil sizes, et cetera.



DEAR EDITOR

Continued

suitable only for use as a chemical reducing agent or precipitating agent, or as a hardener in concrete.

Quite possibly laboratory quantities of commercial iron powders can be obtained through either Ekstrand & Tholand Inc., 441 Lexington Ave., New York 17, one of the leading importers of Swedish powders or Metals Refining Co., Div. of the Blidden Co., P. O. Box 309, Hammond, Ind., a domestic producer. For coarser powders, try Pittsburgh Crushed Steel Co., 49th & Harrison Sts., Pittsburgh.—Ed.

Shooting For Work

Sir:

Can you advise me where I can get information on defense work that might be done in my shop. I make commercial rifle barrels, in calibers from .22 to .45. As my steel supply will no doubt be shut off, I must look around for something to do. It appears that we are all a little late in getting about the current unpleasant business.

I have, now, a capacity of 30 unfinished rifle barrels per day, of one caliber, and of simple shape. It is possible that this capacity can be put to good use in defense work. Where can I find out if my small shop could be of any use.

G. R. DOUGLAS
Charleston, W. Va.

As was the case last time, the country seems to be having considerable difficulty getting organized, and the small shops, which normally are sub-contractors, are the last to be fitted in. According to the Army Procurement Chart, however, rifles in such calibers are procured through the following: Commanding Officer, Rock Island Arsenal, Rock Island, Ill.; Commanding Officer, Springfield Armory, Springfield, Mass.—Ed.

Postwar Plant Disposal

Sir:

I am writing a report on the extent of concentration in the iron and steel industry in World War II. I have been referred by the American Iron and Steel Institute to your booklet entitled "A Study of Wartime Steel Industry Expansion." I would appreciate greatly your forwarding this booklet to me, along with any information you can give me pertaining to the disposal of government built and/or owned steel facilities after the year 1947.

R. D. LEVIDOW
Cornell University
Ithaca, N. Y.

Although IRON AGE did not publish a booklet entitled "A Study of Wartime Steel Industry Expansion," there are several articles which may be helpful: "Wartime Steel Records Revised; Show Mid-1945, Trade Status," Jan. 10, 1946, p. 110; "Tables of Government Owned Steel Plants," Feb. 13, 1947, p. 112, Feb. 27, 1947, p. 102; "Government Still Owns About 150 Million Dollars of Steel Facilities," Feb. 10, 1949, p. 116. These articles give both a brief summary of the wartime expansion and the later disposal to private industry.—Ed.

DO IT FAST

P&J Tooling Specialists can help you tool up to speed up the precision-production of duplicate parts. They know best how to group and combine multiple operations — how to engineer secondary operations into a main setup — how to eliminate all unnecessary work handling.

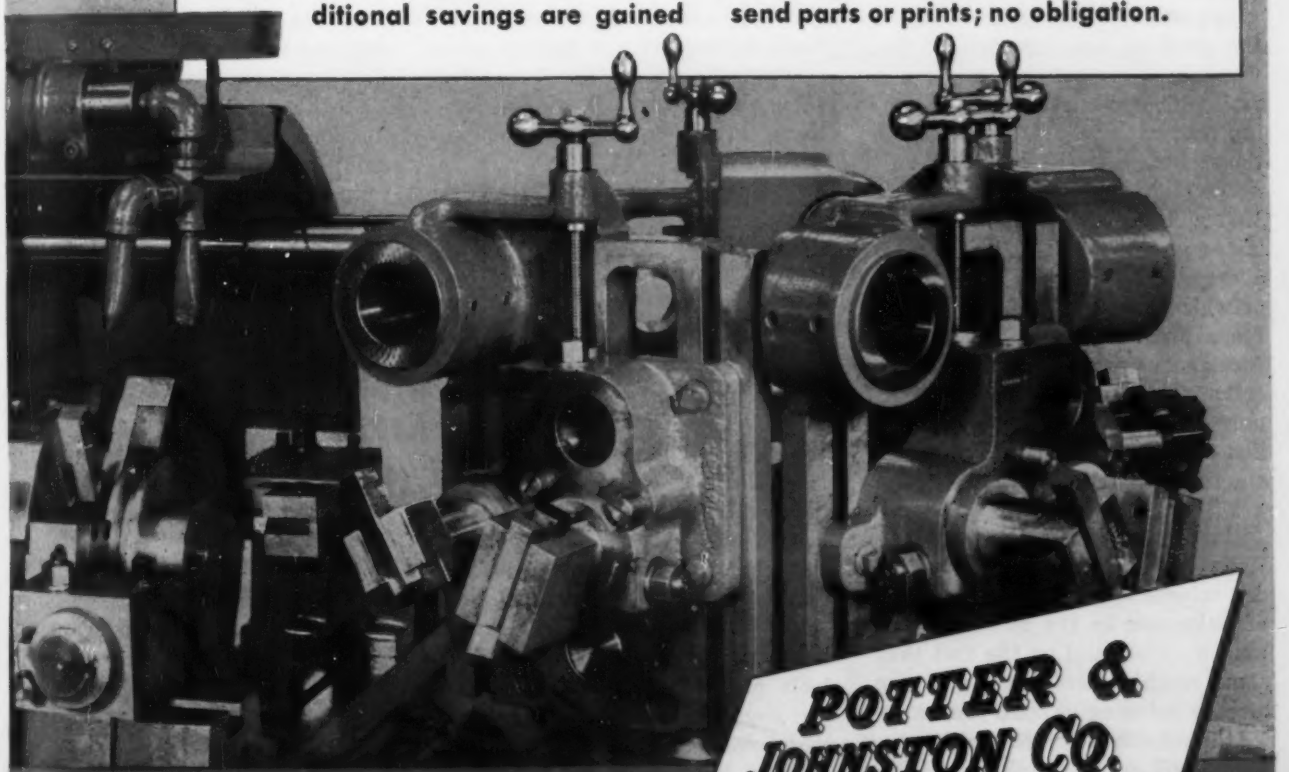
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machine tool high spots

sales inquiries and production

by w. a. lloyd



Big War, Big Role—If it's true that a great country can have no such thing as a little war, the fortunes of the United States in the present emergency will depend to a great extent on the performance of the machine tool industry. A big war means big quantities of material, which is another way of saying that national defense begins in the factories.

Machine tool order volume in 1951 will be very large. During the last quarter of 1950, new orders averaged $80 million a month, most of which were unrated. As the defense program gains impetus and foreign business is placed, the machine tool industry's 1950 order volume will probably surpass $1 billion and possibly reach $1.5 billion, according to reliable trade sources.

Unknowns Limit Forecast—However, any appraisal of 1951 order volume is limited by a number of unknowns in the military planning equation and by the fact that some machine tool companies are already refusing unrated orders.

It is reliably reported that the industry will get $150 million in ECA orders and possibly $250 million under the Mutual Defense Assistance Program, both of which may be subject to revision.

Some of the foreign business the industry will get will be diverted from the European machine tool industry, which is swamped. British builders are quoting 1953 delivery on some machines.

Tooling for War Work—The growing volume of domestic defense production will require additional tooling for aircraft engines, shells, guns, guided missiles and many other projects, secret and urgent.

It has been predicted that the government may anticipate some of these tooling requirements by activating the Emergency Production Schedules or "phantom orders." This would provide the industry with some working capital which some companies could probably use, but would seriously overload it. Objective of EPS is production of 100,000 machine tools in the first 6 months following the outbreak of hostilities.

Those who oppose EPS activation say the plan was set up for an emergency of the Pearl Harbor type, and that many or most of the tools presently on commercial order could be diverted to defense contractors. In other words, the cushion is already on the order books.

Spotlight on Capacity—A potential order volume of $1 billion brings the plant capacity of the industry into sharp focus. Capacity is larger than it was in 1939, but smaller than it was in 1942, peak of World War II machine tool production. In 1945, the capacity had dropped to an estimated $500 million on a one-shift operation. In 1942 the industry's shipments were $1,320,000,000. In today's dollars and prices, the industry would have to make shipment of $2,100,000,000 to reach the World War II peak, which was accomplished with subcontracting.

Shipments in 1950 were about $280 million. The industry will do well to raise its shipments to $600 million this year.

Consider Capacity Rise—In the interval from 1943, when 80 pct of its war production task was finished, to 1950, about 40 companies went out of the machine tool business, through merger, consolidation, or outright sale. Some capacity was lost as a result.

Increases in the industry's capacity are under consideration, however, as it is known that at least seven companies have filed applications for certificates of necessity for expansion.

Blanket Priority Needed—To double 1950 shipments, the industry will need a blanket priority for materials, which is not immediately

ANNUAL REVIEW



M. & M. DUPLEX MILLING AND CENTERING MACHINE
Part — automotive pinion
Operation — mill both ends and center drill
Production — 220 pieces per hour at 100%

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The Motch & Merryweather milling head features rigidity at the tool point.

You can be sure of getting higher production with lower cost per piece by using Motch & Merryweather machines designed for multiple operations. The machine pictured here mills and center drills a vast range of parts, some of which are shown in white above. Our representative will help you obtain thorough-going accuracy, together with *production, PRODUCTION,* and *MORE PRODUCTION.* Contact us *now.*

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Builders of Circular Sawing Equipment, Production Milling, Automatic and Special Machines

PRODUCTION-WITH-ACCURACY MACHINES AND EQUIPMENT

machine tools

Continued

in sight. In World War II, the industry was able to increase production quickly, because it had a high priority for materials early and manpower was available.

Most serious problem facing the industry at the start of a critical year is a shortage of materials. These shortages vary with plant locations and are widespread. Most common items in short supply are steel, sheets and plate, ground shafting, bearings, anti-friction, fractional horsepower motors, oil pumps and copper wire. In some plants, machines are backing up on the assembly floors as a result.

Production Down the Drain—At present, the machine tool builder has priorities for materials for rated orders only. According to Tell Berna, general manager, National Machine Tool Builders' Assn., most companies' backlogs contain only 10 pct rated orders, a few have 30 pct of their business rated and one or two have more.

As a priority system develops the industry will get more materials, but in the meantime, production is being lost.

Warning for New Year—In a year-end statement, Richard E. LeBlond, president of NMTBA, and president of the R. K. LeBlond Machine Tool Co., warned, "From the volume of its unfilled orders one might assume that the industry is headed for unprecedented activity in 1951. As matters stand now, there is grave danger, however, that such may not be the case. There is every probability that while orders continue to rise, output will actually decline, this trend is already in evidence.

Can't Get Materials—"The industry has been unable to get priorities, therefore it can't get steel and other vital materials. Such rated defense orders as the industry does receive constitute a minor portion of its business. Furthermore, while in theory a rating on an order for a particular machine "enables" the builder to get the steel required, in practice steel cannot be bought in such small quantities.

"Unfilled orders are approximately 12 times the volume of current monthly output. During World War II, in spite of the tremendous load suddenly placed upon the industry, the backlog was never more than seven times its then current monthly output. But in World War II the industry was given a blanket priority which enabled it to buy everything it needed for production," Mr. LeBlond pointed out.

Don't Know Industry—Big stumbling block in the granting of a blanket priority at the present time seems to be a lack of recognition on the part of some government officials of the basic nature of the machine tool industry.

On the other hand, MSRB head, S. Stuart Symington has some understanding of the machine tool industry in war production. In January, 1946, Mr. Symington, then Surplus Property Administrator, declared, "Machine tools are the essential backbone of all industrial production."

Labor Supply Important—Manpower is another important problem. In September 1950, latest month for which figures are available, makers of metal cutting machine tools employed 44,500. Total employment in the industry, including metal forming machinery builders, was 80,000.

To produce $1,320,000,000 in 1942, metal cutting machine tool builders employed 112,000 men plus subcontracting. Outlines of the manpower problem in an emergency were apparent to some observers as far back as 1948. A. G. Bryant, president of Bryant Machinery & Engineering Co., and a vice-president of Cleereman Machine Tool Co., and president of NMTBA in 1948, warned that machine tool builders have had to let their working forces dwindle and there are no available reserves of skilled workmen that could be immediately tapped for a rebuilding of working shifts to normal operations.

Transition Takes Months—Supplies of steel, castings, scrap, pig iron and other essentials are on such a scanty basis that months would be required to get machine tool production in the average plant to an emergency basis.

Toll on Manpower—Nucleus of the industry's shop personnel is probably older than it was at the start of World War II, and the poor business of the past 5 years has not been conducive to apprentice training programs. Some of the industry's personnel is subject to the draft, or in the reserves. Finally, the industry has been losing men to other industries which are expanding and paying higher wages.

A diversion of skilled manpower from non-essential production will probably be required to pull the machine tool industry out of the manpower doldrums.

But It Can Be Done—In World War II, production practically doubled every year until the peak was reached and the industry had had 3 years to prepare for the big push. Doubling present production in view of present materials and manpower will be a tremendous accomplishment, but the machine tool industry is noted for such accomplishments.

Fortunately, in the National Security Reserve there are some tools in the grease. The exact number is known only to the government, since many have been released since K-Day, but at one time there were 110,000. According to one estimate, the AAF alone has taken out about 10,000 during the past 4 years. Some are being released to defense contractors at the present time. These tools are somewhat obsolescent and some are being rebuilt by their original manufacturers, but they are a temporary cushion.

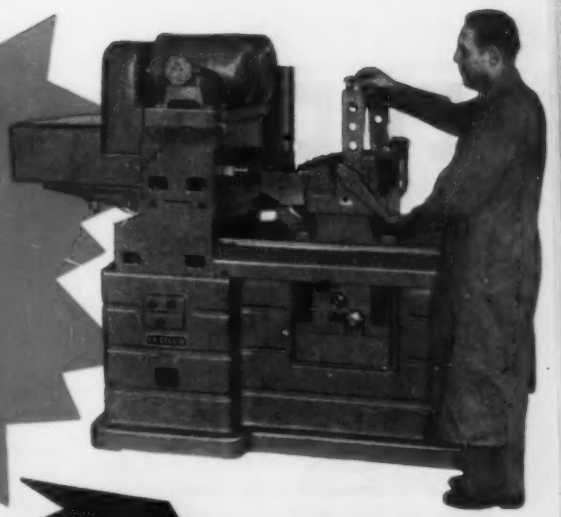
Also, some aircraft engines, tank and shell lines have been kept in stand-by condition.

Cash Surplus Gone—Excess profits taxes and renegotiation will again prevent the industry from accumulating the cash surplus that is a recognized necessity in a cyclical business.

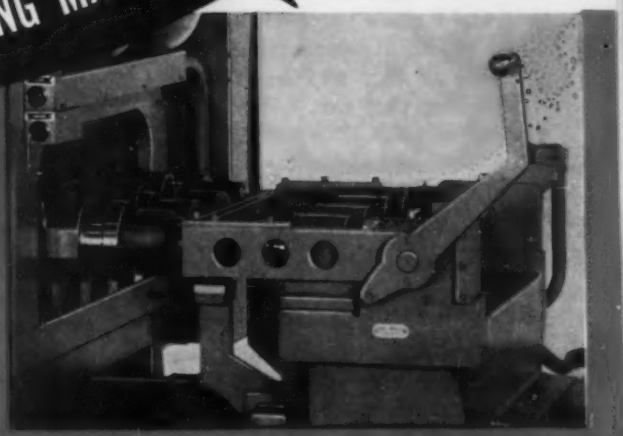
But apart from manpower, and materials, the industry is well prepared for the present emergency. It has good plants and equipment, determination, and good leaders.

8 SURFACES MACHINED ... 1046 PIECES ... PER HOUR ...

... ON EX-CELL-O PRECISION BORING MACHINE



Operator placing pistons on loadi
pins. Movement of the loading lev
controls the automatic machine cyc



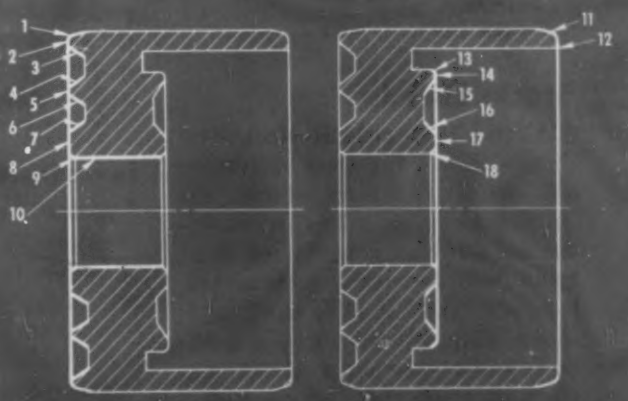
Here the loading bracket has been turned down toward the spindles. Further movement of the loading lever seats parts in the chucks.

Two Style 112-C Ex-Cell-O Precision Boring Machines finish eighteen surfaces of the parts shown in the drawings at right below. One machine finishes 8 surfaces at the net rate of 1046 pieces per hour; the companion machine finishes 10 surfaces at the net rate of 640 pieces per hour. The parts are automotive shock absorber pistons, approximately one inch in diameter.

The spindles, four on each machine, operate continuously. Work loading equipment and automatic ejection of finished parts contribute to the extremely fast machine cycles.

Whether your work involves precision machining in large volume or in small lots you'll find that it's economical to use *standard machines* whenever possible. Ask your Ex-Cell-O representative for complete information on standard Ex-Cell-O Precision Boring Machines.

These enlarged drawings show in heavy lines the surfaces finished on the two Ex-Cell-O Precision Boring Machines. One machine finishes the surfaces numbered 1-10; the other 11-18.



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Portable Hardness Tester

Four models of Ames portable hardness testers, for quick and accurate on-the-spot tests, reading directly in Rockwell hardness scales, are described in a new 6-p. folder. The different models shown vary in maximum capacities for testing flats and rounds up to 1 in., 2 in., and 4 in., all of which can be used to test long bars and large sheets right where they are, without cutting off samples. The simple steps for operation of the tester are illustrated in the folder. *Ames Precision Machine Works.*

For free copy insert No. 1 on postcard.

Vertical Boring Mills

Construction and operating features of 10 different sizes of King vertical boring mills are shown in a series of 4 new 16-p. catalogs. Photos and diagrams illustrate operation of the unit, and the booklet describes various head combinations and attachments. Complete specifications and capacities are listed in the catalogs. *King Machine Tool Div., American Steel Foundries.*

For free copy insert No. 2 on postcard.

Stocks Listed

A new 1951 general stock list, thumb-indexed for easy reference, contains all pertinent information on such items as beams, channels, angles, tees and zees, plates, hot-rolled bars and strip, cold-finished bars and shafting, alloy bars, steel sheets, strip, flat wire, spring steel, brass and copper alloys, aluminum, stainless steel, steel tubing, nails, bolts, rivets and washers, silver brazing materials and welding wire, tool steel and drill rod. Other sections list specifications, physical properties and weights on various materials, and give useful engineering data and conversion tables. *Central Steel & Wire Co.*

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For Track or Road

The Whiting Trackmobile, providing flexibility in spotting, switching and hauling railway cars, is described in a new bulletin telling how combination track and road operation saves time and cuts costs. By use of hydraulic jacks, the unit can be switched from road to track operation in less than ½ minute, as shown in the folder. A few examples of the hundreds of varied applications for the truck are shown, and construction features are listed. *Whiting Corp.*

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Heavy Duty Contactor

The A-C Type 256 high voltage air contactor, designed for general alternating current motor starting applications, is described in a new 8-p. booklet. The simplified construction and operating features of the unit are shown, illustrating its compact design. Special arc chutes are also detailed, and the A-C line of high voltage starters are described. *Allis-Chalmers Mfg. Co.*

For free copy insert No. 5 on postcard.

Investment Casting

A new 4-p. folder describes the investment casting process and applications, and the manner in which this process is used to make substantial savings in machining, tooling, and elimination of waste metal. Metals which can be cast are described, and a diagram illustrates a case history to demonstrate potentialities of investment casting. *Investment Casting Co.*

For free copy insert No. 6 on postcard.

Welding Electrodes

The full line of P & H shielded arc welding electrodes in all practical sizes for various types of welding and hard surfacing are listed in a new 56-p. thumb-indexed, pocket-size booklet. Specifications and operating procedures, along with other up-to-the-minute information on the new low hydrogen electrodes are presented. Section headings in the booklet deal with welding mild steels, cast iron, alloy steels, stainless steels, and electrodes for hard surfacing. *Harnischfeger Corp.*

For free copy insert No. 7 on postcard.

Protective Coatings

A new 4-p. bulletin presents data on five groups of chemical resisting Ucilon protective coatings. Described are coatings based on vinyl resins, phenolic resins, fish oils, chlorinated rubber, and also water emulsion coatings. The coatings are resistant to acids, alkalies, petroleum and its derivatives, water, oxidants, salt solutions, alcohols, and many solvents. *United Chromium, Inc.*

For free copy insert No. 8 on postcard.

Economics Chart

The high spots and the low points of the American economy since 1796 are graphically shown in the 1951 edition of the "Business Booms and Depressions" chart available from the warehousing subsidiary of U. S. Steel. Several new and timely features have been added to this year's edition; including census significance, employment and unemployment, wage rates, retail sales, and per capita income. Of particular interest are indices which show the effect of war production on the nation's economy.

Turn to Page 414D

NEW *production ideas*

new and improved production ideas, equipment, services and methods described here offer production economies . . . fill in and mail postcard.

Acetylene-Air Torch

Features built-in pilot light and diaphragm type valve.

The valve of a new Sod-R-Braze acetylene-air torch is designed and positioned so that the operator can turn the torch on and off, adjust the flame and regulate the pilot light all with the thumb of the hand holding the torch. A fire-resistant, plastic handle is grooved to provide cool operation and a firm grip. Six tips, with individual mixers, ranging from 3/32 to ¼ in. diam, permit a wide range of work, from soldering fine parts to sweat fitting and heavy heating. A carrying stand of aluminum tubing makes the Sod-R-Braze outfit completely portable. It holds a 40 cu ft acetylene cylinder, torch, hose, wrench and torch lighter. *National Cylinder Gas Co.*

For more data insert No. 24 on postcard.

Finish for Aluminum

Can be used as a base for paint or to protect bare metal from corrosion.

The new material called Protecto-Cote is already mixed and needs only to be dissolved in water, 6 oz per gal. Work is immersed in the solution at 185°F, remaining in the bath about 5 min. No electric current is required. The solution is self-cleaning, making the process a one-operation job. *Chemclean Products Corp.*

For more data insert No. 25 on postcard.

Storage System

One-man pushbutton control provides selectivity in handling any item.

A new method of storing materials is said to provide 100 pct selectivity in handling items such as rough stock, pallets, rolled goods, drums, bundles, dies, patterns and tote boxes. With only one attendant the Stak-Rak storage system delivers in-coming materials to the exact position specified, or quickly and accurately selects required units or materials from storage and makes prompt, speedy delivery at the required point. The system consists of self-standing rack-columns designed to receive the required material. A crane bridge spans the entire width of the storage area and travels lengthwise on tracks to any depth. It is equipped with an overhead trolley from which is suspended an electric fork lift. *Chicago Tramrail Corp.*

For more data insert No. 26 on postcard.

Water-Displacer

Insures a chemically moisture-free surface on all metals.

Used as a cold dip, Hydrolift instantly forms a molecular film, even in deep crevices, it is stated, lifting the moisture to the surface where it runs off. The film, when dry, is transparent and can neither be seen nor felt. Coverage is 8200 sq ft per gal. It is suited as a dip, spray, or brush-on after water rinsing of metal surfaces, assuring protection of the surfaces during inter-operational and short term finished product storage. After

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production ideas

Continued

pickling and rinsing, parts immediately dipped in Hydrolift will not rust and there are no after reactions. The film dries in 15 min, leaving a clean, desirable surface for further plating or finishing. *London Chemical Co.*

For more data insert No. 27 on postcard.

Power Hoist Unit

Portable drill one minute; power hoist the next.

A Skil 1-in. drill model 163 combined with an American handiwinch makes a complete power hoist unit in a matter of minutes. A simple adapter kit locks the drill and handiwinch in perfect alignment, assuring safe, big-capacity hoisting on all jobs. The drill can be taken out of the hoist bracket and is ready for drilling jobs. With a hoisting capacity of 1000 lb at 10 fpm, the drill-handiwinch combination is designed for use by contractors, machine shops, foundries, garages and warehouses. *Skilsaw, Inc.*

For more data insert No. 28 on postcard.

Welders Coat

Sleeve fronts are double thickness of leather to assure long wear.

A new model welders coat is a 26-in. length coat made of soft, pliable chrome tanned split cowhide in small, medium, large, and extra large sizes. It is generously cut for greatest comfort. Other features include double stitching, snap fasteners, adjustable wrist snaps, seam end reinforcement with copper rivets. *Metal & Thermit Corp.*

For more data insert No. 29 on postcard.

Fire Protection System

Dry chemical piped system for total flooding or for local application.

A new fire protection system using dry chemical as extinguishing agent is operated by an H.A.D. (heat-actuated device) mechanism. When fire starts and temperature increases, air expands within the H.A.D. This trips a nitrogen cylinder release, pressurizing the dry chemical container. Dry chemical is then discharged through strategically located distribution heads onto the fire area. Automatic controls can be added to close doors, windows, ventilation ducts and to operate valves on pipes carrying flammable liquids. Electric controls can be included to shut off motors and fans, sound alarms and transmit signals to central stations or fire alarm headquarters. Manual operation as well as automatic is provided. *Ansul Chemical Co.*

For more data insert No. 30 on postcard.

Improved Coolant

Hydrodyne said to improve coolants regardless of oils or additives used.

Increased coolant efficiency is said to result from the addition of minute quantities of Hydrodyne, a new multiphase wetting agent. It reduces the interfacial tension of the coolant assuring its intimate contact with working surfaces and it speeds dissipation of harmful heat. The coolant lasts longer, spreads faster and splashes less. *Aquadyne Corp.*

For more data insert No. 31 on postcard.

Vane Filing Fixture

Speeds up fitting a set of vanes to a cold spot compressor.

A simple tool is said to enable an unskilled helper to fit a set of vanes in 5 min within the extreme tolerances of 0.0001 in. The tool is micro-adjustable to the 5 sizes of vanes, including those of sealed units. It is precision made of case hardened tool steel, heavily plated to insure lifetime service. *Wagner Tool & Supply Corp.*

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Hydraulic Grinder

Wheelhead swivels 180°; mounts internal and external spindles.

The wheelhead on the new universal hydraulic grinder is designed to eliminate dual work setups for internal and external grinding. The operator can quickly present either spindle to the same work. A feature providing added accuracy and speed is the mounting of draw-in collets and step chucks directly in the lathe type workhead and the operation of a lever closer to reduce chucking time. Internal spindle speeds range from 6000

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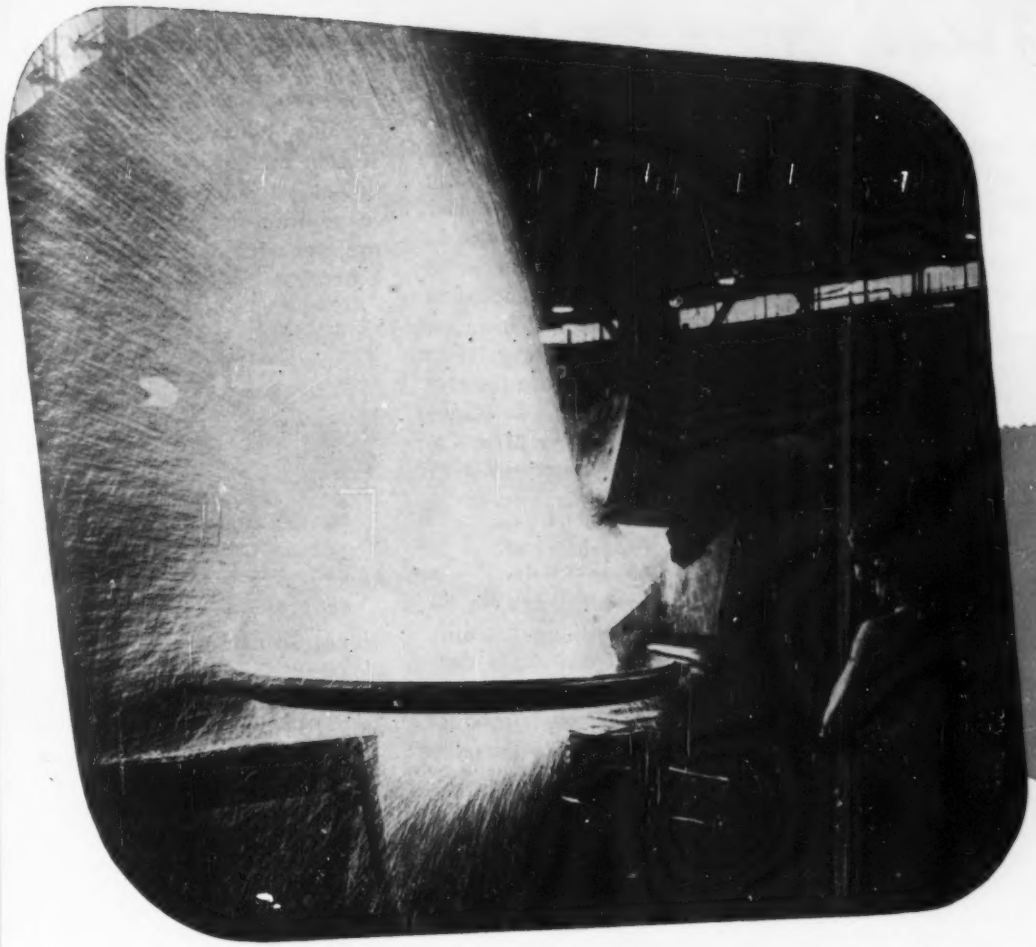
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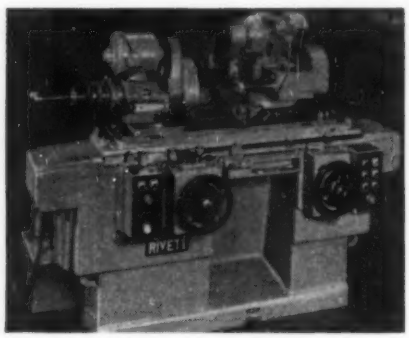
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spindle speeds range from 6000 to 35,000 rpm. All spindles are flanged mounted, sealed from grit and life lubricated. The external spindle with double-row roller bearings for radial load and ball



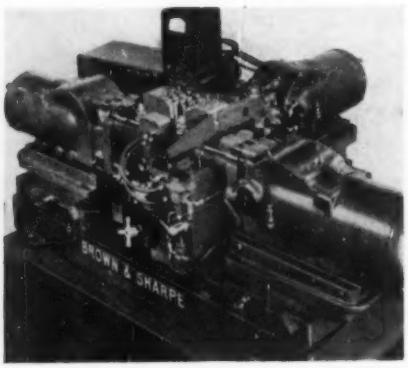
bearings for end thrust permits maximum rigidity with no adjustment required. Other features include micrometer table stop and fine feed for shoulder and blind-hole grinding; sine bar for setting workhead on table swivel for perfect tapers; double swivels on cross slide for two angle internal and external grinding. *Rivett Lathe & Grinder, Inc.*

For more data insert No. 33 on postcard, p. 37.

Electronic Equipment

Speeds machining of jet engine blade

Accurate machining of the holding surfaces with respect to the airfoil surfaces of blades for jet engines is speeded up by a new machine developed for positioning the blade and drilling center holes used



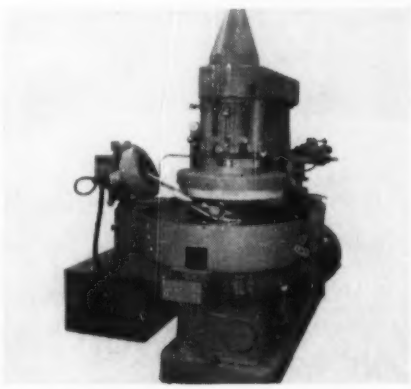
for location purposes in a subsequent machining operation on the holding surfaces. The blade is supported in a cradle that adjustably pivots about two axes and is adjustable vertically. Each of the three movements can be clamped independently of the others. Proper positioning is effected by observation of six strain gage indicator points in contact with the airfoil surface and adjusting the three movements to zero position. After positioning the blade three combination center drill and facing cutters advance to make three operations on bosses on the blade. The setup is accomplished from a master blade. The machine accommodates 17 blade sizes. It is estimated that one man can operate the machine at a rate of 100 blades per hr. *Brown & Sharpe Mfg. Co.*

For more data insert No. 34 on postcard, p. 37.

Lapping Equipment

Adaptable for the finishing of small flat parts continuously.

A new arrangement of the No. 26 Hyprolap vertical lapping machine for finishing small flat parts continuously is suitable for products having an unusually high production requirement. It is reportedly well adapted to the production lap-



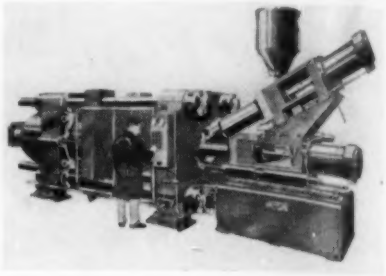
ping of small flat washers and similar parts that offer no unusual problems in the way of rapid loading. The new design features automatic loading and unloading during lapping cycle. Lapping is continuous with no down time except for dressing laps. Handling time is reduced to a minimum and the machine operator can be unskilled. Lapping operations require special work holder design with the machine operator loading and unloading each part individually and controlling the lapping cycle. Where the continuous feed arrangement is feasible, these duties have become almost completely eliminated. The photograph shows equipment furnished for continuous or through feed lapping of small brass washers. *Norton Co.*

For more data insert No. 35 on postcard, p. 37.

Injection Molding Machine

300-oz capacity, 1500-ton clamping pressure, and 4x6-ft mold size

Fully hydraulic, a plastics injection molding machine having a 300-oz capacity is equipped with manual as well as automatic single cycle control and adjustable speed control of the injection ram. Indi-



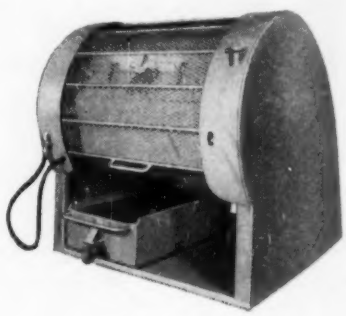
vidual adjustable control of injection and clamping pressures is also provided. The machine's immense capacity, clamping pressure and mold size accommodation, and its 4 ft maximum stroke and 6 ft daylight opening will enable molders to produce parts with deeper draw and opens up new production possibilities. *Watson-Stillman Co.*

For more data insert No. 36 on postcard, p. 37.

Tumbling Machine

Has increased capacity for grinding, de-burring and finishing metal parts.

A new tumbling machine employing the Grav-i-Flo tumbling process uses Grav-i-Flo chips and compounds to produce smooth and high luster surfaces. The machine is 5 ft 8 in. wide x 5 ft 4 in. deep x 5 ft 8 in. high. With its two 24 x 40 in. ID compartments, it is claimed to



handle a 30 pct larger work load than comparable machines occupying the same square feet of floor space. Compartments are furnished with ½ in. plate unlined or ¼ in. plate rubber-lined. Doors have cam locks with manually released safety

Turn to Page 410

"Save with SIMONDS" Forged



Rotary Shear Knives

So says anyone who slits any type of sheet or strip metal. For they *know* that these "Red Streak" Knives cut straighter, cleaner, *and longer between sharpenings* . . . because they're forged and micro-finish ground. Forging condenses the grain structure — prevents nicking. Micro-finish grinding permits non-ferrous metal slitting without "pick-up."

Designed for specific shearing applications, these long-lived knives are made from 3 types of steel forged in Simonds' own mills . . . High Chrome, Special Alloy and High Speed. Send for free "Shear Selector" chart or ask for a "Simonds Man" to help with your slitting problems.



. . . and Squaring Shears



Cross-section showing "Tungsweld" High Speed Steel inlaid cutting edge.

This "Tungsweld" Squaring Shear far outlasts other types . . . causes less down-time . . . gives far faster, cleaner shearing of tin plate, silicon, monel, stainless and other thin sheet metals . . . all because of Simonds' special method of welding a high-speed steel inlay to tough steel backing. Order a set today made to your exact specifications and "Save with Simonds."

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IRON AGE *introduces*

William G. Rogers, elected executive vice-president of the EAST OHIO GAS CO., Cleveland. **George W. Horsley, Robert W. Ramsdell** and **John H. Carson** were named vice-presidents.

E. S. Quarngesser, elected vice-president in charge of the eastern sales division of the FRUEHAUF TRAILER CO., Detroit. **W. W. Siegrist** named vice-president in charge of truck body division and **Harry R. Badger,** vice-president in charge of scheduling.

Lorenzo Semple, elected vice-president and treasurer, **John W. Brennan,** secretary of the U. S. PIPE & FOUNDRY CO., Burlington, N. J. **Donald Ross** resigned as secretary-treasurer, to become first vice-president of the United Concrete Pipe Corp., at Baldwin Park, Calif., a partially owned subsidiary.

Ray F. Sparrow, named senior vice-president of P. R. MALLORY & CO., INC., Indianapolis.

N. W. Landis, named manager for the Detroit district office of ALLIS-CHALMERS MFG. CO., Milwaukee. **F. S. Schuyler** is retiring after 43 years of service with the company. **A. J. Mestier, Jr.,** succeeds Mr. Landis as manager of the Syracuse office.

Roy J. Foster, appointed secretary and member of the board of directors, of the CONSOLIDATED IRON-STEEL MFG. CO., New York.

H. Stanley Worthington, retires as assistant to the vice-president—operations, of COLUMBIA STEEL CO., San Francisco.

Robert C. Black, appointed advertising manager of the Machinery Division of DRAVO CORP., Pittsburgh.

E. Preston Calvert, appointed director of public relations for PULLMAN-STANDARD CAR MFG. CO., Chicago. Other appointees: **Hugh W. Foster,** advertising manager, **Paul Ackerman,** editor of employee publications.

Evan Price, appointed turbine sales manager, of the WHITON MACHINE Co., New London, Conn.

Carl Brooks, named general sales manager of GENERAL DRY BATTERIES, INC., Cleveland. Mr. Brooks has held various positions with the company since 1933.

David R. Hull, elected vice-president of RAYTHEON MFG. CO., Waltham, Mass. Mr. Hull will also be manager of the equipment divisions.

Norman C. Minehart, elected vice-president in charge of abrasive division, CHARLES H. BESLY & CO., Chicago. **Jack T. LeBeau,** appointed manager of the abrasive department.

Robert Gregg, retires as president of TENNESSEE COAL, IRON & RAILROAD CO., Birmingham.

Howard E. Maloney, appointed manager of sales, Electric Wire Div. of JOHN A. ROEBLING'S SONS CO., Trenton, N. J. **Frank T. Craven,** appointed assistant manager of sales; **Roy H. Hainsworth** became eastern regional manager.

F. C. Helms, Jr., appointed midwest branch manager, Morse Twist Drill & Machine Co., New Bedford, Mass.; division of VAN NORMAN CO. Mr. Helms will make his headquarters in Chicago. **Norman S. Fagerson** named representative in the Chicago area, and **M. P. Lansing** named representative in Texas.



EDWARD J. HANLEY, elected president of Allegheny Ludlum Steel Corp., Pittsburgh.



ARTHUR V. WIEBEL, named president, Tennessee Coal, Iron & Railroad Co., Birmingham.



HAROLD B. WISHART, appointed chief metallurgist, Gary Steel Works, Carnegie-Illinois Steel Corp., Chicago.

IRON AGE

salutes

Clark W. King



TO be informed these days is to be alive. To get things done with the minimum amount of confusion and frustration is to be almost a genius. To work at full steam and yet have everyone keep from blowing his top is worth talking about.

These things may sound like fairy tales. They aren't as far as some people are concerned. One who fills this bill is Clark W. King, executive vice-president and treasurer of Allegheny Ludlum Steel Corp. This fellow has the background and experience to shine under today's handicaps.

He is a type which we will call vice-president in charge of the president. His knowledge of his industry is broad—yet it is detailed. His background started years ago when he went with the American Steel & Wire Co.

His baptism of fire came during the National Recovery Administration when he helped to administer the NRA Steel Code. Later he joined Bethlehem Steel.

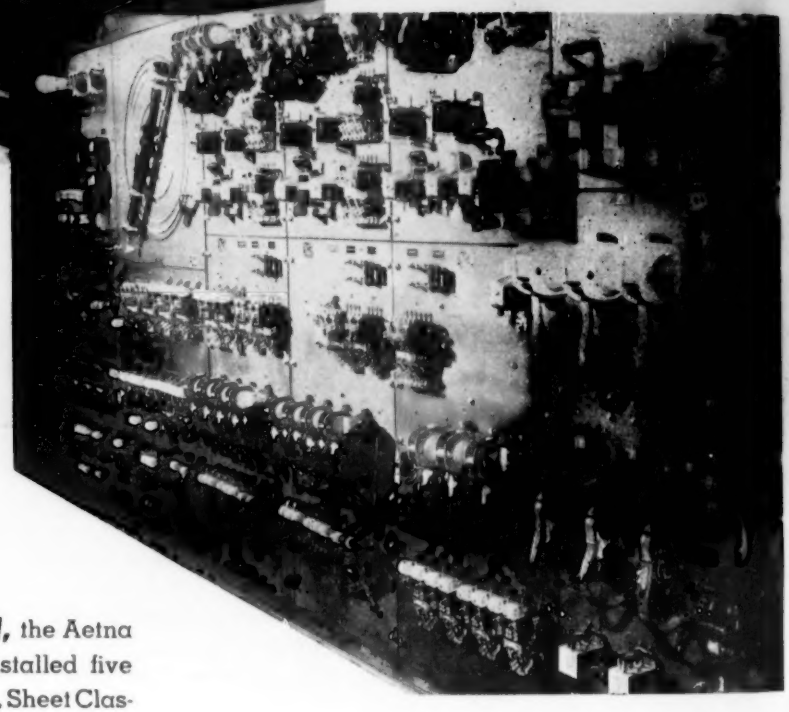
His ulcer days were soon to come. In 1941 he went to Washington on loan to the War Production Board. There he had headaches and gained experience—he served under seven different directors. Clark went with Allegheny Ludlum in 1945 as executive assistant; he was boosted to vice-president a year later. He was made treasurer and a member of the board of directors in 1949 and elected executive vice-president in December 1950.

He gives himself to more worthy causes than you can shake a stick at. He rates a salute because he represents the type of people coming along who will keep the steel industry where it belongs—and also keep it moving.

CLARK CONTROL for HIGH SPEED TIN MILL SHEARING LINE



5 Aetna-Standard Shearing Lines



Clark DC Control for One Shearing Line

● ***In a Midwest Tin Plate Mill,*** the Aetna Standard Engineering Company installed five Flying Shear Lines with Side Trimmer, Sheet Classifiers and Conveyors, **ALL CLARK CONTROLLED.**

These lines handle coils up to a maximum of 30,000 pounds, and are capable of operating up to a maximum speed of 1000 feet per minute.

To maintain this high speed, the **CLARK** mill type apparatus ably co-operates to control the many motors that drive the heavy duty lines.

The build-down of the Payoff and the Speed-match, between the Side Trimmer and Shear, are automatically controlled by **CLARK** Photo-Electric Modulated Loop Control.

This is a typical **CLARK ENGINEERED** installation, accurately and efficiently co-ordinating both A.C. and D.C. operation to maintain high speed, and quantity production.

For all steel mill auxiliary control applications, consult your nearest CLARK *office for approved time-proved and accepted* CLARK CONTROL.

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on the assembly line

automotive news and opinions

Output records fall like leaves in 1950 . . . Detroit now worries about war cutbacks and girds for war production.



by walter g. patton

From Records to Cutbacks—Practically all of the automobile industry's production, sales and profit records were shattered in 1950.

Trouble was signaled by war clouds rising in the Far East. Europe was uneasy. By the year's end, serious cutbacks in auto production for 1951 were certain. A reduction in schedules of 30 to 35 pct by the end of March was a definite possibility.

Rollback in Car Prices—By mid-December Washington had already made cuts in raw materials and ordered a rollback of car prices. The industry was waiting for more and more restrictions to come out of Washington as the year ended.

Output Fools Prophets—During 1950 passenger car output established an all-time record. An estimated 6,550,000 passenger cars and 1,300,000 trucks were built. Total U. S. vehicle assemblies plus an estimated 400,000 Canadian output reached 8,200,000 units. As the year began, the industry's most optimistic prophets would have settled for 7 million units.

Wholesale Values Soar — Coupled with price increases, the record production sent wholesale values to an all-time peak of $10,250 million. This is a gain of 25 pct for the industry. The increase over the previous year is 28 pct for passenger cars and 14 pct for trucks and buses.

Replacement part sales were off from the 1948 peak. Compared with a record $2,553 million in 1948, the auto service parts business in 1950 aggregated about $2 billion.

Exports Drag Feet — Exports were still dragging their feet. Only 145,000 passenger cars and 135,000 trucks were sold abroad during the year. Passenger car export business was off again by 7 pct although trucks sold abroad were up 3 pct compared with 1949.

Output Fills Highways—If the nation's highways seemed crowded there was a good reason. At the year's end 39,710,000 passenger cars were registered. Adding 8,774,000 trucks brought the 1950 total to an unprecedented 48,484,000 vehicles on the public roads. This is a net gain of 9 pct.

Employment at Peak — Despite the use of much greater machine capacity and electric power, direct employment in the industry hit a new peak of 715,000 production workers and 125,000 salaried employees. Total payrolls, swelled by wage hikes during the year, hit $2,700 million. This is a gain of 22 pct.

Cars Get Older — Statisticians could point to the fact that despite its record production in the postwar period, the industry actually produced fewer passenger cars in the 1941-1950 decade than it assembled during the two previous 10-year periods ending in 1939 and 1929. The average age of vehicles on the highway in 1950 was 8 years compared with a 5.5 year average for the prewar years.

Faith in Future—During the year the industry showed its faith in its future by (1) advancing millions of dollars to build new steel capacity, (2) greatly extending its facilities for production and research, (3) buying 25 pct or more of its steel via the costly conversion route.

Industry Milestones—Early in the year Chevrolet introduced its new automatic transmission made entirely of metal stampings. In late January, Chrysler was hit by a strike that lasted 100 days, second only to the 113-day GM strike. Ford announced plans to build a foundry and engine plant in Cleveland.

The cost-of-living index was fading as late as March, and GM simultaneously reduced wages and

ANNUAL REVIEW

assembly line

Continued

prices. This is in sharp contrast to the runaway prices that hit the industry before the end of the year. By December the industry reported the price jump for raw materials ranged from 7 pct on steel to 300 pct on rubber.

Engine **Hopes Sink**—During the year it became clear that a large segment of the industry was committed to new high compression engines of the type introduced earlier by Oldsmobile and Cadillac. Chrysler Div. and Studebaker were in actual production.

Four new Ford engines, a new Ford tractor powerplant and engine programs for Dodge, DeSoto and Buick were under way. The prospect of these engines being in production on schedule in 1951 sank with every new report of reverses in Korea.

New Assembly Plants—During the year, Oldsmobile opened a new assembly plant. Ford also brought in a new assembly plant at Buffalo and a new transmission plant at Cincinnati. Another milestone was the decision by Fisher Body to halt production of wooden bodies for station wagons in favor of all-metal bodies.

GM Sets Pattern—During March, Nash granted a pension plan to its workers. This was followed by the Chrysler pension in May. In June, GM announced its unprecedented 5-year peace plan with the UAW-CIO. This set the wage pattern.

By the end of the year, it was estimated that more than 80 U. S. manufacturers employing 2 million workers had hitched their wages to the cost-of-living index. Each major auto producer now has a 5-year peace plan with labor. The industry had no way of knowing how its agreements would stand up in a wage freeze.

Light Cars Debut—The light car made history during 1950. Introduction of the Nash Rambler in April was followed later in the year by the Henry J produced by Kaiser-Frazer. The Big Three were still holding off on a light car but Nash and K-F saw promising markets for small passenger and utility vehicles.

Ups and Downs—On June 25 shooting started in Korea and an auto market that was just so-so spurted for a few weeks. Then sales began to taper off. Late in the year serious reverses to the American forces abroad again revived the threat of limited auto production.

Once again, a fading new car market got a shot-in-the-arm although credit restrictions imposed by the government undoubtedly limited the public response. Independent producers reported serious sales obstacles had been placed in their path.

Arms from Detroit — National defense entered the automobile picture in a substantial way in June when the new Cadillac tank plant at Cleveland was announced. By the end of the year, Continental had a contract to build tank engines. GM Diesel was turning out war materials. Ford announced it would build aircraft engines in the old Tucker plant in Chicago.

Buick will build tank transmissions. A few Detroit firms had defense sub-contracts. Chrysler, Reo, Willys and GM had truck contracts. However, the total volume of defense business in the Detroit area was hardly more than 5 pct of total production as the year ended.

Stalin vs. Crystal Balls — Joe Stalin may not have planned it, but during 1950 he ruined one of Detroit's favorite indoor sports—making rosy predictions about the future. Unqualified predictions about the coming year were out the window. The industry may be fortunate to reach 50 to 60 pct of its 1950 output.

Even before the government declared a state of national emergency, these Detroit developments could be seen for 1951: Automatic transmission output will be severely curtailed. Buick, Ford and Studebaker will be hard hit by the aluminum shortage. Chevrolet, which uses metal stampings instead of aluminum castings for its major transmission components, may also feel the aluminum cutback. Cast iron pistons will be widely used in the industry.

THE BULL OF THE WOODS — BY J. R. WILLIAMS



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west coast progress report

digest of far west industrial activity

by r.t. reinhardt



It's Been a Good Year—Clearly discernible above the grousing and griping over material and manpower shortages in the metal producing and metalworking trade of the West can be heard a note of satisfaction with last year's business.

Steel producers showed an average 1950 operating rate of approximately 98 pct, which includes several dismal weeks during the coal strike. As the year closed it appeared production of rolled steel in the seven Western states would exceed the forecast here last year by some 400,000 tons.

Preliminary estimates indicate nine western steel producers made approximately 3,200,000 tons of rolled products in 1950.

A Few Highlights—Steel production in the West followed the national pattern closely with operations running from 90 to 95 pct of capacity until the Korean war, when producers began hitting from 100 to 106 pct.

Expansions and modernization of furnaces made some contributions to production capacity. Bethlehem Pacific Coast Steel Corp. last year began furnace enlargement which will ultimately increase the capacity of its South San Francisco plant approximately 25 pct and the company got its 75-ton electric furnace operating in Los Angeles.

Two Openhearth Furnaces—Pacific States Steel Corp. at Niles, Calif., put two 125-ton openhearth furnaces in operation. Kaiser Steel Corp. started its 86-in. hot strip mill rolling in May.

Kaiser's Yoder pipe mill, with a capacity of approximately 100,000 tons per year of 5-in. to 14-in. diameter pipe, was put in production. Geneva Steel Co. put its expanded plate mill into production of hot-rolled coil early in 1950.

Fabricators Happy—With few exceptions steel fabricators wound up 1950 with a total volume almost as good as in 1949. Only complaints were shortages and restrictions of some specialty items such as wide flange beams. As 1950 ended, the material pinch became more acute, perhaps more so in the West because of the mills' tendency to ship larger lots of specialty items to nearby users.

Warehousemen's Worry — Steel warehouse operators were not too happy at year end because government steel allotments were based on a period of considerable depression for most western jobbers. During the first 6 months of 1950 many jobbers showed only 60 pct as much business as in 1949.

Under government allocation, 1950 dollar volume was probably considerably less than in 1949. No immediate relief is in sight and the only consolation operators have is that they are reasonably sure to dispose of all their steel.

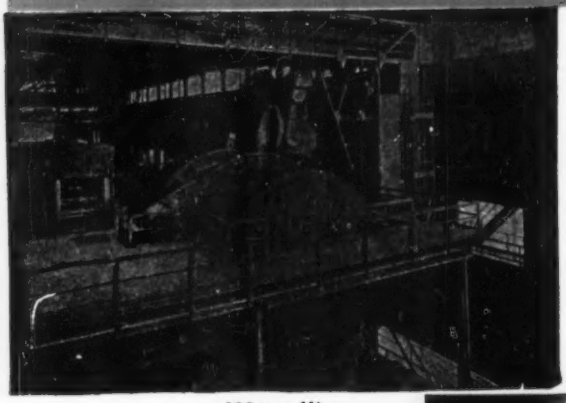
Historically, a larger percentage of steel used in the West, 30 to 35 pct, is sold through jobbers than is the practice nationally. Hence a drop in inventories is having greater impact on small users of steel here than elsewhere.

Aluminum Hot Spot—Aluminum was poured at record rates in the Pacific Northwest during 1950. Kaiser Aluminum & Chemical Corp.'s installation of the eighth pot line of 140 electrolytic cells at Mead, Wash., is expected to begin producing early this month. Production of the Mead plant will be 145,000 tons per year and the Tacoma plant, 25,000 tons per year. The company is planning installation of a plant or plants to produce approximately 100,000 tons in the southwest.

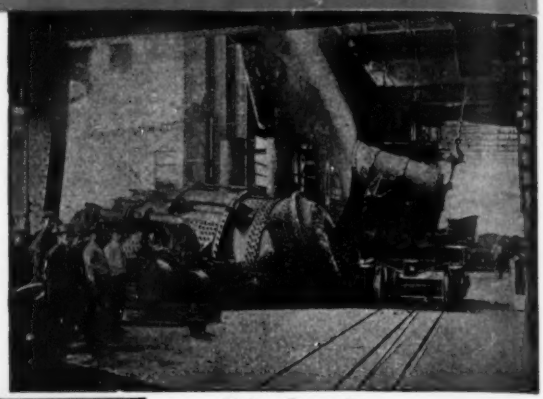
Operate at Capacity—Plants of Reynolds Metals Co. at Troutdale, Ore., and Longview, Wash., and

ANNUAL REVIEW

CONVERTERS, MIXERS
TILTING OPEN HEARTH FURNACES
DUPLEX STEEL PLANTS



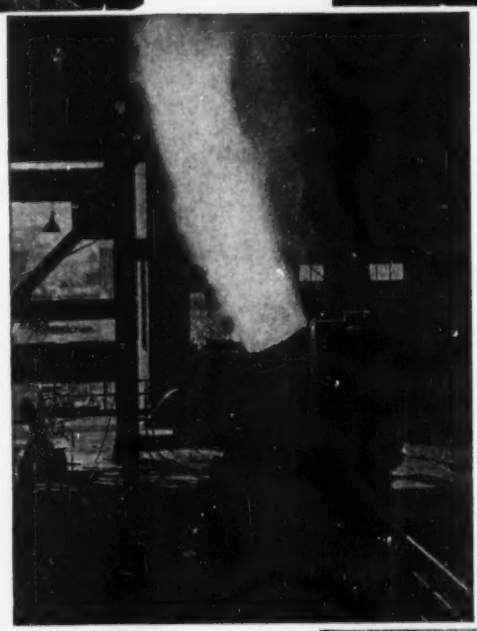
600-ton Mixer



25-ton Converter

These pictures give but small evidence of Pennsylvania Engineering Corporation's contribution to the Steel Industry.

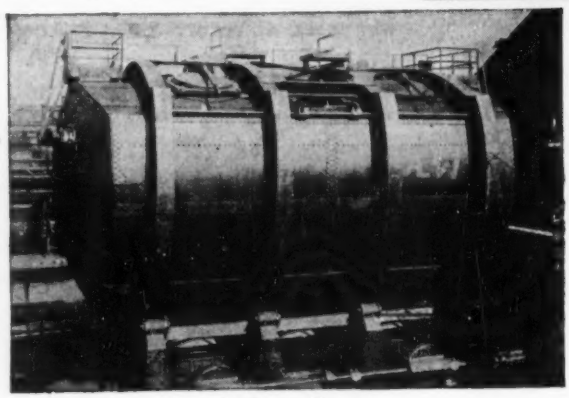
Backed by many years of experience and the great number of installations in the many Steel Plants, the Pennsylvania Engineering Corp. is prepared to design, fabricate and erect complete Duplex Plants, including Mixers—25 tons to 2000 tons capacity, Open Hearth Furnaces—50 tons to 400 tons capacity—both tilting and stationary, Converters—5 to 50 tons capacity, Converter Jack Cars, Bottom Oven Cars, Regulating Valves, Slag Cars, Ladles, Ladle Cars, Transfer Cars, Jib Cranes and Hauling Systems.



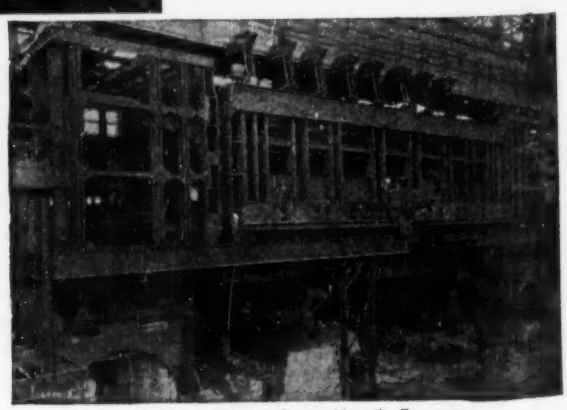
Blowing Charge in 15-ton Converter

Installations of some of the illustrated equipment at

Inland Steel Company
Tennessee Coal, Iron & Railroad Co.
Youngstown Sheet & Tube Company
National Tube Company
Carnegie-Illinois Steel Corporation
Republic Steel Corporation
Bethlehem Steel Company
Great Lakes Steel Corporation
Weirton Steel Company
Jones & Laughlin Steel Corporation
Ford Motor Company, River Rouge
Ford Motor Company, England
Broken Hill Proprietary Co., Australia
Tata Iron & Steel Company, India
Algoma Steel Company, Canada
Steel Company of Canada, Ltd.
Compania Siderurgica del Mediterraneo, Spain
Cia. Fundidora de Fierro y Acero, Mexico



1500-ton Mixer



400-ton Tilting Open Hearth Furnace

Pennsylvania Engineering Corp.
New Castle, Penna.

west coast report

Continued

that of the Aluminum Co. of America at Vancouver have also been operating at capacity. Longview is rated at 31,000 tons; Troutdale, 70,500 tons; and Vancouver, Wash., at 85,000 tons. Last year the Aluminum Co. of America officially opened its aluminum rod and wire mill at Vancouver.

California is out of the aluminum production picture. The plants built by Alcoa for the DPC at Los Angeles and Riverbank, Calif., have been gutted and the equipment dispersed.

Harvey Machine Co. of Los Angeles entered the aluminum production field last year with start of construction on the first unit of a reduction plant at Kalispell, Mont. This company purchased one of the 140 cell pot lines from the government which had been installed at Riverbank.

Crystal Gazing—It is too early to accurately predict production of rolled steel in the seven western states for 1951 but preliminary surveys indicate it will be in the neighborhood of 3,500,000 tons.

By the second quarter of this year Kaiser Steel Corp. will have its eighth openhearth in operation at Fontana, Calif., to bring Kaiser's total ingot capacity to 1,380,000 tons per year. Geneva Steel Co. intends to increase ingot capacity by 160,000 tons.

Kaiser will have under construction this year an electrolytic and hot-dip tin plant with a production of approximately 200,000 tons of tinplate per year which will be fed from a new 5-stand, 44-in. cold mill.

More Tinplate Production—Kaiser in 1951 will be getting a greater portion of its ore from Eagle Mountain when a screening station is completed which will permit reclamation of fines.

Columbia Steel Co. at Pittsburg, Calif., has under construction additional cold-reduction facilities which will have a capacity of approximately 250,000 net tons of cold-rolled sheet and tinplate. This unit is expected to be completed by mid-year.

Geneva Expands—Geneva Steel Co. at Geneva, Utah, is installing facilities for production of 100,000 net tons of hot-rolled sheets annually, most of which will go to Columbia Steel for cold-reduction. This gives Columbia and Geneva a combined capacity of 640,000 tons of sheet and tinplate plus large capacity for production of other steel products.

There is still no definite announcement as to plans of the U. S. Steel Corp. subsidiary, Columbia Steel Co., on what will be done with the old Alcoa aluminum plant in Los Angeles, purchased by Columbia in October, 1948.

Was to Be Sheet Mill—At that time it was stated that it was to be made into a sheet mill with an annual capacity of approximately 300,000 tons.

Corporation officials since then have been evasive as to what will be done while at the same time they have given public assurance that a steel facility of some type would be installed there.

General Outlook—Additional ingot capacity and finishing facilities will be installed in the West. Even with production of 3½ million tons of rolled products per year there is still a deficiency of at least a million tons which is being supplied from eastern and, to a limited extent, foreign sources.

There is no indication of an appreciable let-up in population growth with 16 million people already making their homes in the seven western states. Experts anticipate that by 1965 this territory will have a population of more than 23 million.

Increased Steel Market—This continuing growth indicates a sizable increased market for steel. Taking average consumption of steel in California at 600 lb per person, which is below the national average, a potential market of 7½ million tons is developed.

Balanced Economy—It should be pointed out that even though the rate of growth of manufacturing and industry in the West has exceeded the national pattern, the balance between manufacturing, service industries and agriculture in relation to the West's economy remains almost constant.

There is no indication that unbalance in favor of manufacturing is imminent.

Expansion Trend—A Federal Reserve Bank survey shows that although all industries expanded between 1939 and 1947, the second and third most important expansions in terms of both value added and number of production workers occurred in the machinery and metals industry.

The number of metal plants (primary and fabricated) has increased from 1421 in 1939 to 2715 in 1947 with an increase in production workers from 40,500 to 110,000. Since the 1947 census was taken, the rate of increase has been phenomenal, but reliable figures reflecting this increase in the metalworking industry in the West are lacking. The best estimate would be that the number has increased to at least 125,000.

Steel Users Increase—The 1939 census showed 700 of the plants included in the metals category as processing plants of steel users and a conservative estimate of the number of such steel users today is approximately 2000 in the seven western states.

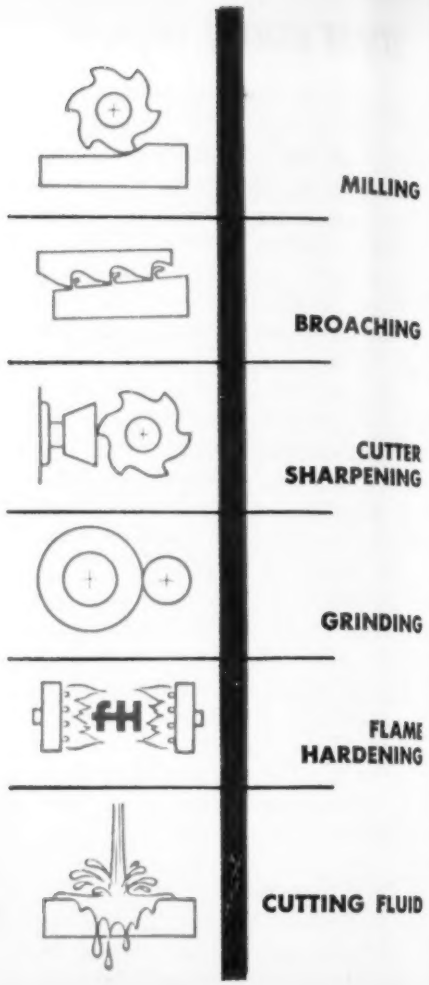
Bright New Year—Under the existing garrison economy, there is no question every metal producer and metalworking plant will enjoy a profitable 1951 with the only limiting factors being availability of materials and men.

Even industries already affected by government allocations of materials will, after a period of adjustment, work out a modified operating rate which should return profits.

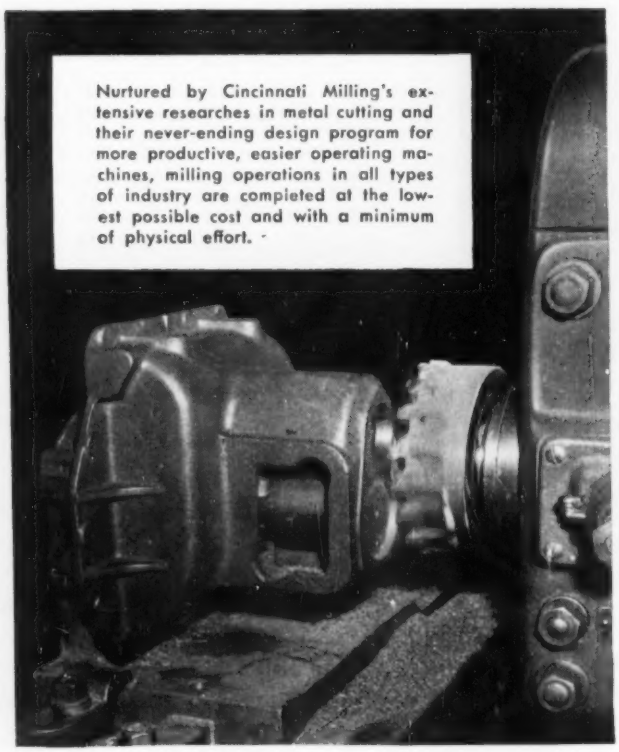
As severe as material shortages may be in curtailing production, skilled and semi-skilled manpower shortages will be far more important in limiting production.

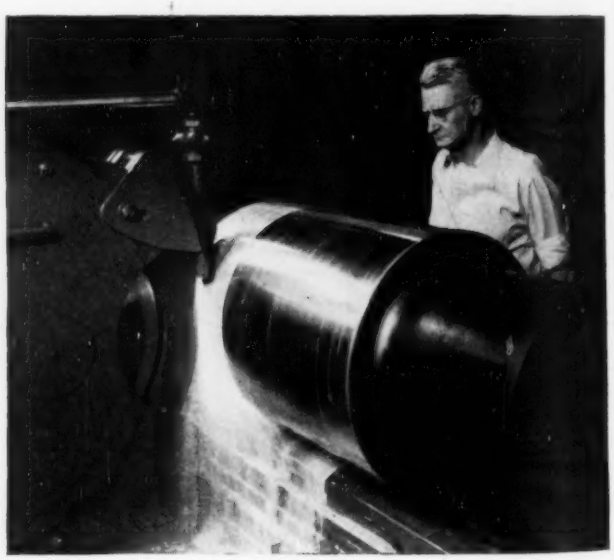
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the federal view

this week in washington

by eugene j. hardy



1951????—Official Washington is confronted with a situation different from anything recorded in history. In partial mobilization to meet a war which may be a long time coming or could burst overnight, the control agencies are following the World War II pattern. The big unanswered question in 1951 is whether such a pattern will suffice in a lengthy period of mobilization, provided all-out war is staved off. This is one of the major problems facing C. E. Wilson in his new post as director of Office of Defense Mobilization.

More and More Controls—The 1951 outlook for business on two major fronts is a rapidly expanding controlled materials system and an almost equally rapid excursion into direct price, wage control.

Complete allocation of nonferrous metals and the ferroalloys is expected before a CMP for steel. The National Production Authority had indicated a possible easing in steel during the first half of 1951.

Cut in Steel Use—Three major factors are: (1) a coming cut in the allocation for freight cars; (2) a substantial drop in auto production due to inability to obtain metals other than steel; and, (3) relatively stable military demand for steel in the first half amounting to about 10 pct of product tonnage.

If this easing does develop, it will be only the lull before the storm and will not necessarily mean more steel for civilian products, but will provide more leeway in planning essential programs. It is the basic reason for the belief other metals will come under complete allocation before steel.

Agency Lacks Personnel—Lack of manpower to administer CMP is one of the major problems facing NPA and at the root of this problem is almost complete lack of available office space.

Private office space is being taken up and government offices are moving into new and unfinished residential apartments, in an effort to ease the shortage caused by ever-expanding civil agencies. At year end, NPA was operating with some 750 people. A complete allocation system would require between 10,000 and 12,000 employees.

Price and Wage Controls—Price and wage controls will blanket the economy. Again, the World War II pattern will be followed, with wages being allowed to rise within an area similar to that established by the "Little Steel" formula.

Direct price controls will develop from a selective system applying to key commodities.

Office Space Needed—ESA is also troubled by problems of office space. Having only several hundred employees at the beginning of 1951, ESA will need a minimum of about 30,000 to effectively administer price, wage and ration controls. OPA's World War II employment ran to about 67,000.

Centralization—A strong effort to centralize all controls, production, price, wage transportation, and manpower, within one powerful agency, will be seen in 1951. The drive for such action will probably be sparked by Capitol Hill.

Bureaucratic prerogatives are expected to stall this movement, except for possible centralization of production controls powers.

On the hand, actual administration of various controls is slated for decentralization with regional and field offices being given wider latitude than in World War II.

Demand for Workers—Manpower problems will be accentuated. It is expected general manpower needs for defense industries will be met, since workers will gravitate from civilian plants as materials become scarce.

Skilled labor shortages present a tougher problem and one of the an-

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the federal view

Continued

swers will be a step-up in the apprentice program. Controls will not be mandatory but will follow the World War II "voluntary" outline.

Hiring at State Offices — Primary control will force all hiring through state employment service offices with essential industries getting first crack at available workers.

Nothing will prevent employers from trying to hire workers on their own, but in a tight market the state offices will be the only real source and will, for all practical purposes, control the flow of labor. There will be a recruiting drive to attract women and older workers who have retired.

Military Spending—The movement toward tighter controls will depend on how fast the military translates money into orders. Chances for getting a slice of military business during the first half of 1951 are more than doubled.

Military buying will increase by at least 50 pct, and prime contractors must step up letting of subcontracts if delivery dates are to be met. Procurement funds available to military services total $18 billion, which must be spent or obligated before June 30.

Stockpiling — The materials headache will increase as the government tries to make up for stalling tactics in stockpile building. Whether from reluctance of the Munitions Board to press for funds or refusal of Congress to recognize needs, or both, stockpiling is far behind schedule.

First-half buying will be stepped up sharply as the remaining $440 million of the original $800 million (for current fiscal year) appropriations are committed.

Seek Additional Funds — The White House has asked Congress for $1.8 billion in supplemental funds so that advantage could be taken of any and all opportunities for stockpile purchases.

The Munitions Board is in a vicious cross-fire in this situation. Congress is screaming about the low state of the stockpile. If stockpile buying is increased rapidly, adding to materials shortages and causing unemployment, Congress will scream again.

A compromise between normal peacetime buying for the stockpile and NSRB Chairman Stuart Symington's desire to complete the stockpile by the original 1952 target date will provide the solution.

Industrial Expansion—Increasing defense needs and growing shortages of non-defense goods will shove plant and new equipment expansion above the $19 billion record of 1948.

Allowing for higher costs, 1951 investment in new industrial facilities will far exceed that of any war year. On the basis of preliminary reports to government agencies, the Securities & Exchange Commission looks for first quarter expansion to top $5 billion.

Expansion in Industry—A major portion of expected expansion will center in the industrial and manufacturing fields. Electric power and gas facilities will continue to increase.

Expansion of commercial facilities such as mercantile and other trade fields will slow down, partly because of diversion of goods and materials to more direct defense uses.

Congress to Oversee Program—As far as Congress is concerned, the metalworking industries are faced with long-range economic problems not concerned with day-to-day administration of controls by executive departments and agencies in the year ahead.

Congress takes the view that the pattern of business controls necessary for U. S. industry to wage its part in the battle against Communism has been pretty well defined.

Enforcement Up to President—Controls over materials, prices, wages and manpower all have been authorized in the Defense Production Act of 1950. How well—or how badly—these controls are enforced is now entirely up to President Truman and his staff of control experts.

This does not mean Capitol Hill has washed its hands of the overall Federal defense program. Plans are in the works in both Senate and House for creation of new "watchdog" committees to keep an eye on the way Mr. Truman and his staff administer the control powers.

"Watchdog" Groups—Based on performance during the last Congress, one of the most important of these "watchdog" groups will be a Senate Armed Services subcommittee headed by Senator Lyndon Johnson, Texas Democrat.

With his subcommittee counsel, Securities and Exchange Commissioner Donald C. Cook, he has raised honest criticism of some aspects of the defense program (steel, rubber, and surplus property, for example) that have won plaudits from businessmen and politicians.

Keep a close watch on this committee. Unless it unexpectedly puts its foot in its mouth politically—as Congressman Celler's "antimonopoly" group did last year—it will travel far in 1951.

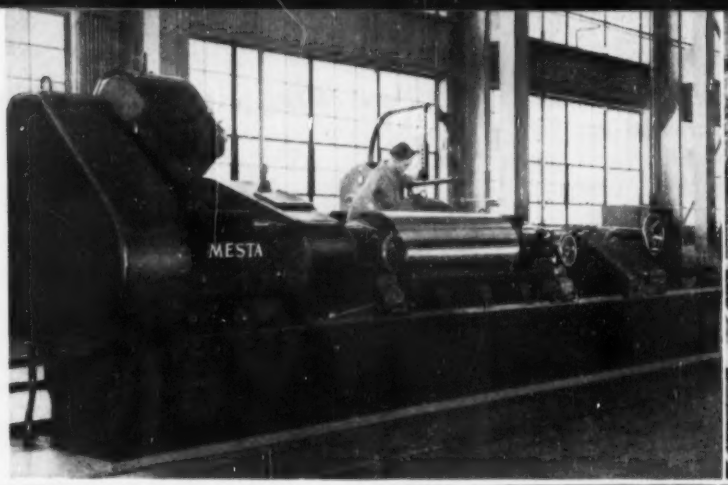
Higher Taxes—Tax-wise, it appears certain corporations and individuals will be hit with new and sharper increases this year.

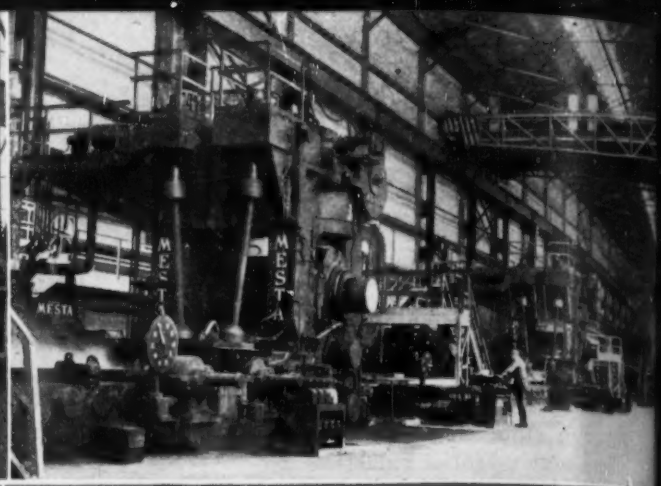
These increases will be apart from an excess profits tax. Few businessmen—and just as few congressmen—are fully aware today of the tremendous sums of revenue the government will need in the months ahead. A rude awakening is in store for both groups when the Treasury Dept. unfolds its new requests for additional revenue.

"Monopoly" Fights Off—In the antitrust field, comparatively little legislative activity is expected. As long as the nation is at war, or at least preparing to defend itself, Congress will be inclined to postpone moving against what some members call "trends toward monopoly."

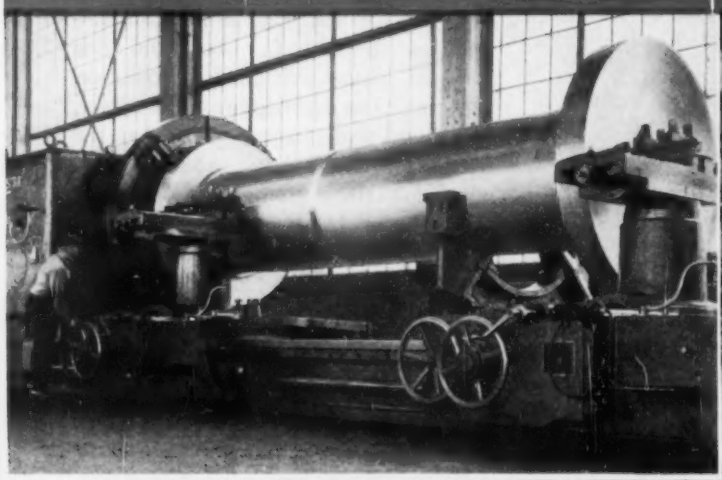
Following the World War II pattern in this regard, the government will offer the highest praise of U. S. industrial might during time of crisis, and follow it up a few years later with criticism in peace.

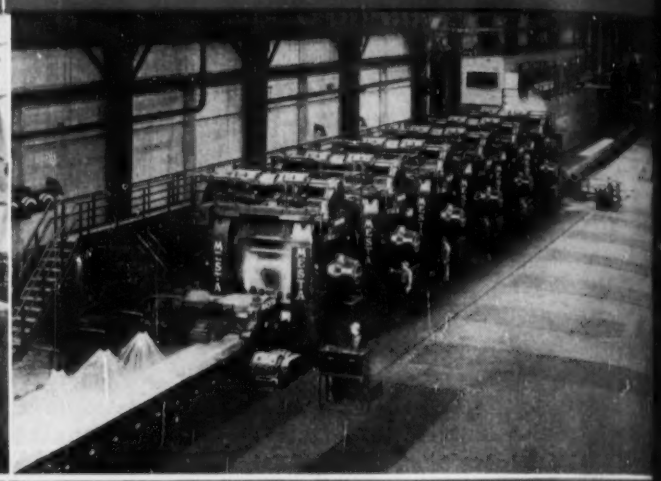
Anti-Trust Let-Up — Another wartime moratorium on anti-trust suits will highlight activities of the Justice Dept. and FTC in '51.



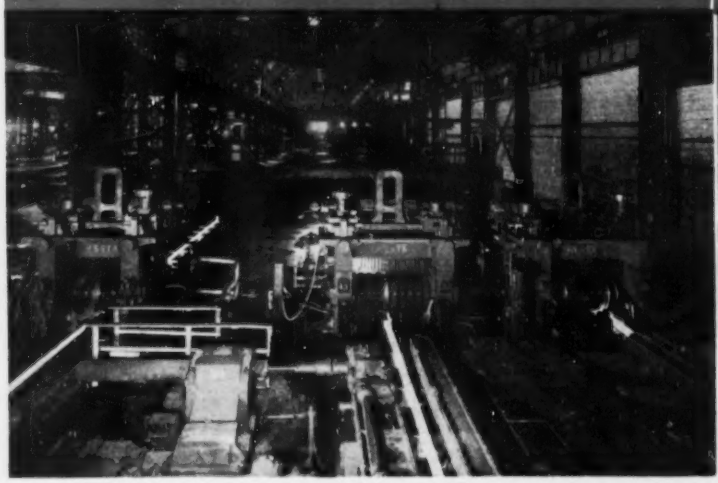


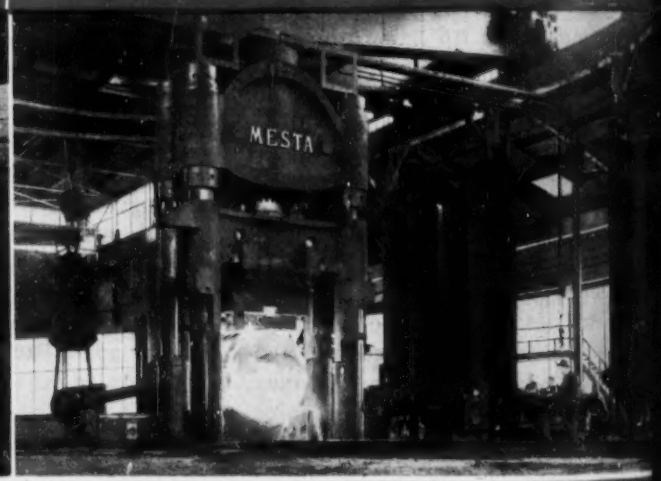
MESTA HEAVY DUTY TRAVELING WHEEL TYPE ROLL CHANGER

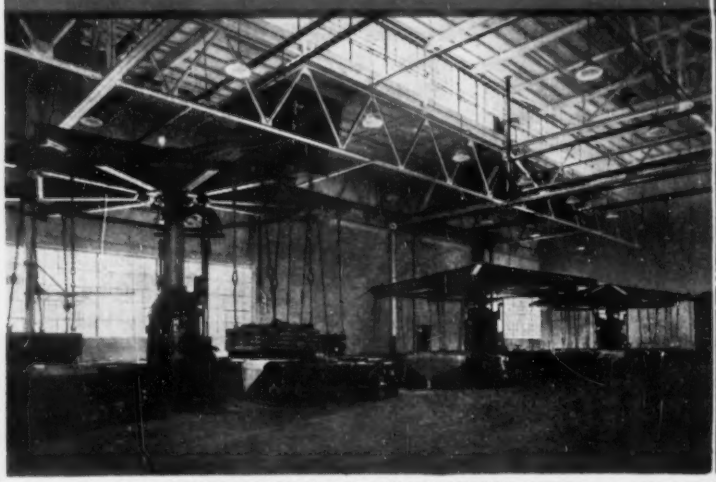




FORGING A FORGED STEEL ROTOR SHAFT FOR A TURBINE DRIVEN GENERATOR



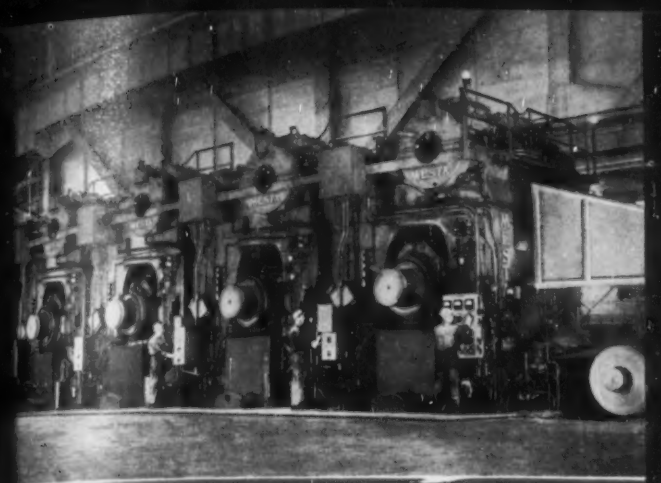




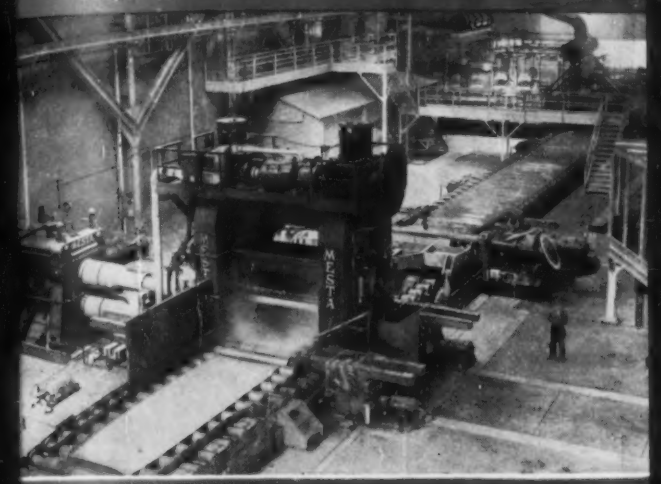


GROUP OF THREE 20" MESTA PATENTED
PICKLING MACHINES FOR PICKLING DROP FORGINGS

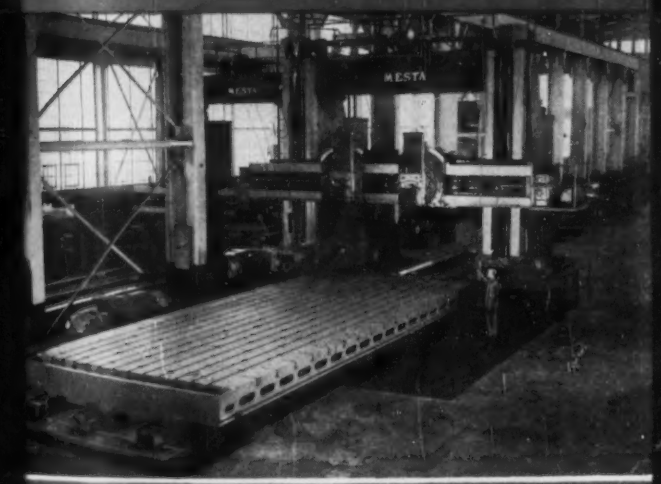
MESTA HIGH SPEED CONTINUOUS PICKLING LINE



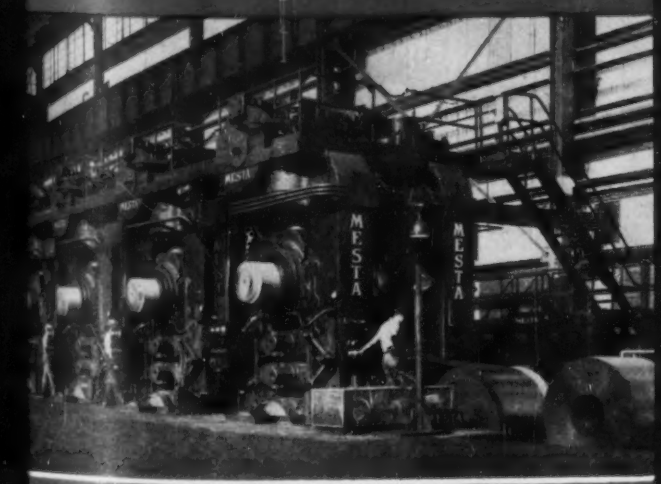
MESTA 42" FOUR-HIGH, FIVE-STAND [illegible] COLD MILL



MESTA 110" FOUR-[illegible]



MESTA [illegible]



MESTA [illegible]
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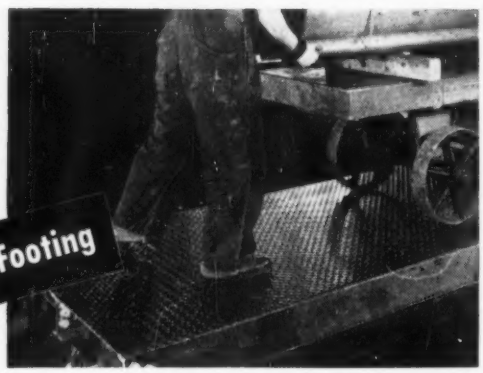
PITTSBURGH, PENNA.



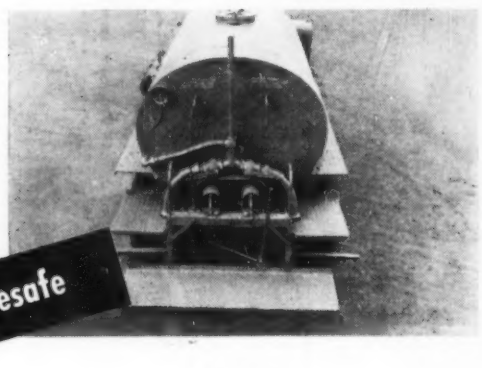
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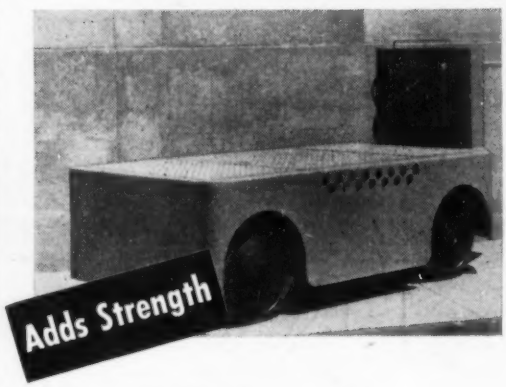
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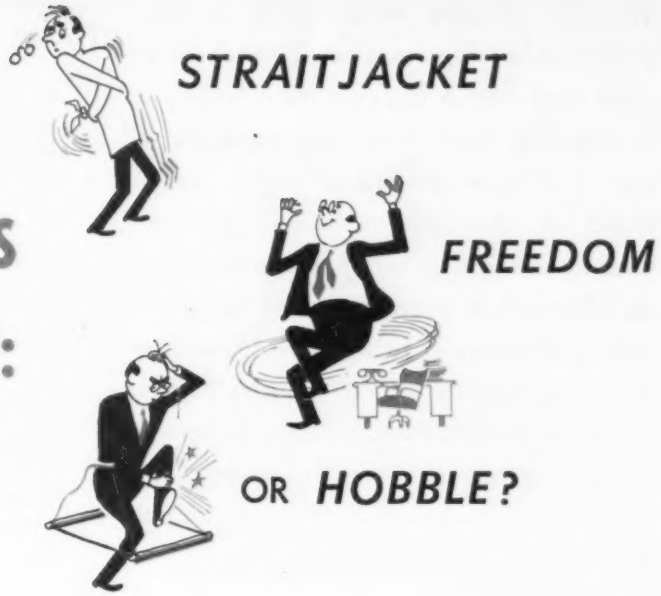
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Industry's Future:





By Tom C. Campbell
EDITOR

TOP management people today face a bleak future—if you look at the hurdles set for them. Industrialists know they are over the barrel too often—many times unfairly so. Those being trained to take key jobs may not know all the facts of industrial life but they will learn soon.

Now is the time to gird for battles to come; to work for changes that are needed. The goals, hard work and rewards will be worth it.

Why all this fuss about management? Management is good today—it has to be. But being good is not enough. This year will see the steel industry and other metalworking groups almost under complete control. What they can do and what they can't do will be largely dictated by government. This hobble may extend for as long as 4 years or more. If management is not alert, informed and on the ball we may wake up some day and find that we have controls forever.

Just as America must be strong to contain Russian communistic expansion so must American industry fight for its freedom on the home front.

This calls for housecleaning in management's talking, thinking and acting. The alternative is creeping control over business by socialistic, security-crazy and mediocre elements in our government.

Creeping paralysis of personal initiative means a strait jacket for industry, not for a short time but forever. Industry needs freedom to act and to expand if it is to carry out its responsibility.

It is silly to say that all people in government are mediocre. Thousands of workers in Washington and elsewhere are talented and loyal. They can match any setup in industry—in quality or number.

Some Hobbles Needed

But just as there are misfits in industry so are there in government. They are more dangerous in government because they can exercise power. Power compensates them for their own shortcomings. They can cost the people much in money, prestige and freedom.

There must be many hobbles in business if defense requirements are to be met promptly and if our system is to retain its stamina to oppose Communism. Productive power of the American people must be kept high or increased so that the greatest number benefit.

There is only one way to raise production — more output per man. This means better methods, better tools and a greater housecleaning on the use of inferior machinery.

The job goes further than this. There must be a real reawakening—an intellectual and spiritual approach to the human problems in industry

Whether industry winds up in a strait jacket or has the freedom it needs to expand and nourish this country is largely up to industry itself. Creeping paralysis will put it in a strait jacket if the current trend in socialistic thinking continues. One trouble is that top management is not as informed as it ought to be. Yet, to be informed today is to be alive. There are a lot of pitfalls along industry's rocky road. Here some direction signs have been posted. If you can't hire a vice-president in charge of the president you may be able to appoint a man to do his job.

and government. The mechanical phase is bound to forge ahead—it may have left behind the human phase.

We are a mass-producing nation. Many of our skilled jobs are monotonous to the workers. They do the same thing day in and day out, year in and year out. The work week and the work day are much shorter than they were 15 or 20 years ago. That is also true of routine jobs—of which there are millions.

All workers do not know how to use their spare time in a positive way. Some do, but we don't have to worry about them. Those who meander after working hours feel the oppressive effects of mass production or routine job jitters.

These effects are often expressed in bigger wage demands, sunshine security for old age, readiness to gripe and a sense of frustration. If these are multiplied by millions, management faces a negative force which must be met with patience, explanation and education.

Government has not helped people too much. Much of the social progress would have come one way or the other. A lot of it is good. A lot of it came about through expediency, to corral the greatest number of votes. Some of it is downright dishonesty.

We Need "Know Why" Too

Industry has furnished the tools and the "know how" but has it furnished the "know why?" Many industrialists individually know the answer but as a group can't get it across. If the real case for personal initiative is not sold by industrial leaders to the public and to workers, then private enterprise—as we know it—may not survive the next decade or two.

What has business to do with all this? It has plenty. Leaders must come from industry. They must think in broader terms than just chasing the dollar, cutting costs or making better products. They must do the impossible. They must sell the basic usefulness of the capitalistic system to the greatest number of people—quickly.

Years ago industry's problem was restricted to our own country. Now it must sell its bill of goods not only at home but throughout the world. If it doesn't it will be duck soup for communistic salesmen who have been making hay in other parts of the world.

Obstacles to a better understanding by Americans for the way business succeeds are great. They involve hostile elements of the government and unnecessary mistakes by management.

For many years industry has faced an ingrained Administration that is inherently against business—no matter what political hacks may say in conciliatory speeches.

Some Administration politicians have developed doubletalk to perfection. They have garnered support from some segments of industry and at the same time pulled the props from under that very segment.

Poor pay, political favors and the pressure for workless prosperity have brought an unsurpassed mediocrity in government. Sincere and honest men cannot act. They are chained. Any attempt to loyally serve the people is often hindered by red tape, a sense of frustration and a general attitude of "what's the use." This attitude—understandable at times—plays into the hands of the vote getters who attempt to keep a perverted caricature of Santa Claus in office forever.

"Rabble Rousing" Is Tool

Most of the crack-brain, log rolling, below-the-belt projects coming from the Administration are obtained fairly easy. Putting these ideas over is easy because they appeal to a people who are becoming more conditioned to them; it is easy because the methods used are the toughest to fight.

The major technique has been, and will be,

"Government doubletalk"





"The receptionist who gives the firm a bad name"

"rabble rousing." In every day language this means "he has more than you; you ought to have as much as he; we will show you how to get it." This works well with flocks of people.

No politician bothers to tell the people that you can't get something for nothing. Or that you have to work hard for what you do get. Or that every man doesn't have the same capabilities or capacities.

Another tried and true tool for putting across a campaign against business is known as the "smear" technique. No facts are necessary. Just make up a good story; palm if off on a friendly columnist or news man. Then sit back and wait. The person being smeared can't answer except to deny the charges. Even then it takes so long that the retort never gets the attention the smear gets.

People would rather hear things than read them. A smear campaign usually turns into a first class whispering campaign. By that time it is almost too late to do anything.

These same tactics apply to congressmen who follow in the footsteps of that segment of the Administration and government which wants the fruits of the capitalistic system but at the same time wants to tie it in knots.

But all obstacles to a better understanding of individual freedom do not come from government. There are drawbacks in business which encourage strait jackets or too tight a hobble. Many of these road blocks are simple—which make it all the harder to do something about them.

Management Not Informed

Statistics, conversation and interviews show that top management is not as informed as it ought to be. There are good reasons for this but they do not excuse the condition. To be informed today is to be alive. If they don't know what goes on industry leaders can't fight back quickly, answer trick questions and keep their own business up to snuff.

Every top management man knows his own business. If he didn't he wouldn't be where he is. He spends hours of his time away from his home or his family pouring over reports, studies and recommendations.

There are only so many waking hours. Because of this our executive hasn't time to be properly informed about trends in: other lines of business, government, international affairs, medical advances, competitive situations (in other fields which will affect him), religion, "human" research, politics, and man-on-the-street viewpoints.

Too Many "Yes" Men?

Many men are informed—they are the leaders. They get recreation and they take vacations. They know they are not indispensable. But they are selfish with their time. They don't waste it doing things that somebody else can do as well as they can, if not better. There are not enough of these men. Industry needs thousands of them.

Because of the science (?) of "getting ahead" these days it is hard to tell whether those on the way up are sincere or whether they just read somebody's book on how to influence people and make friends. This may explain why we have too many "yes" men; or it might be that top executives are beaten over the head so much by politicians and have so little to say at home that they fall for the "yes" man patter.

Too many "yes" men will not equip industry to fight for its life. Too many top people feeling indispensable will not put industry ahead or

help the country to any great extent. Delegation of authority has been proven on paper but in practice there is plenty of room for improvement.

What industry needs is a vice-president in charge of the president. Top management jobs today are too much for one man who must operate in a vacuum much of the time. No wonder a recent curbstone question "Would you like your boss' job?" got eight "No's" out of each ten answers. Management's job is not going to get any easier—it's going to get harder. Sacrifices may extend to a man's family and even his health unless the job is streamlined.

No Apple Polishing Necessary

A vice-president in charge of the president is not an attempt at being funny. This man won't have to polish apples because his contract says he can never become president. His salary will be close to the president's so he won't want the top job. He will be the man in the company who must say "No!" as often as other people say yes.

He will read and digest everything in the domestic and international news picture. He will know what gives in his own business and in every other one even remotely connected with his. He must see the fancy, well tabulated, well dressed and sparkling reports made up for the president's attention—before the president sees them.

He will not only censor the president's proposed speeches but he will disappear for a few days to try them out on the kind of people who will be listening to them. He will be the man who goes through the organization and gets the "feel" of the way things are. Top officials often want a report on the way employees feel but they get what other people would like to have them believe.

"Management often talks down"



This vice-president in charge of the president will insist that his boss participate in community events; get publicity in his own local community and quickly attack enemies with facts, fast words and a human touch. He will argue against too much emphasis on polls and statistics. To him people are not numbers; they insist on being people.

This reasonable facsimile of superman knows that management often talks down to people instead of to them. Our man would probably also hire a hall once a year where the top people can meet their employees if the company is not too large. He would also knock out the fanfare, the salaaming and the furious fussing which accompany plant visits by top management.

The Job Is Frightening

Our much needed friend would also toss overboard the receptionist, the phone operator and the people who by their manners give the firm a bad name to visitors before they have a chance to see the president or his staff.

He would also recommend that newspaper people only be called in when the people in the company have something to say. He would go to bat for the key men in the organization and see that they are not kept on the hook too long. He might even help weed out the ones who look like they have it but don't and give those who have it a fling at new jobs.

Those who can best fight for freedom are industrial leaders. Their job is frightening. If they lose, our way of living will go. If that goes so will most of the things which make this country what it is today—the watchdog of individual freedom and dignity.

Don't Miss It!

This issue of The Iron Age was made to order for you. Each day in the year you can keep it close by and know that facts and figures in your industry are there.

The advertising pages also reflect the best efforts of your suppliers to help solve your problems.

Your suggestions led to many changes in this issue compared to last year's effort. New facts are there. Some material has been dropped; this space has been used to better advantage.

Finding and reading these facts and figures will be faster and easier. Leaf through the magazine and see for yourself.

Mid-Century Reference of
HEAT TREATING



By F. R. MORRAL, *Dept. of Materials Engineering*
Syracuse University, East Syracuse, N. Y.

THE curiosity of the scientist and of the engineer, together with the tools they have devised and developed, have made possible some systematization in the art of heat treating. The modern generation is taught with fair ease why steel hardens, and why an interrupted quench is successful. One explanation is enough for all steels, while some years ago each steel was considered to be a special class. The scientific approach, now aided by thermodynamics (C-154) has been used to explain the transformations of austenite. The diffusionless hardening by martensite transformation has been found in some nonferrous alloys, and others will no doubt be studied. No references are given in the table to the other method of hardening, which is accomplished by precipitation reactions.

No historical review will be attempted, but suffice it to mention that Biringuccio about 1540 A.D. (B-90) may have referred to a version of the interrupted quench. Early this century some metallurgists wondered why a treatment similar to the patenting given to steel wire could not be given to other steels. Fabian in 1934 (F-1) advocated a technique similar to martempering to obtain stress and crack-free martensite. Austin (A-216) has summarized the history of the hardening of steel in the last 50 years.

To the iron-carbon constiution diagram has been added the Time-Temperature-Transforma-

This is the most complete and modern index of references on time-temperature-transformation reactions ever assembled. Ferrous and nonferrous metals are included. Austenite transformations are affected by chemistry, grain size, segregation, cleanliness, etc., as well as by time and temperature. Many different references on these and isothermal heat treating practices are covered with a complete, modern reference index of each. Important foreign work is also used.

tion diagrams, and more recently the Temperature-Time-Hardness tempering diagrams which permit an accurate design of heat treatment (H-161).

The table is divided into a number of subjects which are and have been of interest and which are related to the science of heat treating and for which work has been published. This table is the index to the complete list of references which follow the table.

SUBJECT	REFERENCE NO.
I. Historical	A-216, B-90, D-5
II. Surveys and General Reviews (American and foreign)	1, 2, B-26, B-200, C-10, C-180, D-1, D-9, D-50, D-54, D-55, D-56, D-140, D-210, E-125, G-200, H-3, H-151, H-161, I-10, J-60, M-18, M-150, M-151, M-152, O-10, P-6, R-55, R-90, R-220, U-1, W-54, W-100, W-101, W-250, and others
III. TTT Diagrams	
1. Nonferrous alloys	
a. Aluminum bronze	A-130, G-187, M-1, S-130
b. Silicon bronze	H-90
c. Other	I-50
2. Ferrous alloys	
a. Effect of analysis	
A. Carbon	B-200, D-5, M-150, M-152, P-6, U-1
B. Manganese	A-211, D-5, H210, J-50, K-180, L-10, M-152, P-6, R-221, W-52
C. Nickel	D-5, I-10, M-152, P-6, S-40, S-81, U-1
D. Chromium	D-5, D52, G210, J-51, L-155, L-250, L-251, M-152, P-6, U-1
E. Molybdenum	A-180, B-120, B-121, C-120, D-5, H-153, M-60, M-150, M-152, N-1, O-1, P6, R-210
F. Tungsten	D-5, H-210, M-152, P-6
G. Cobalt	D-5, H-15, M-152, P-6, S-250
H. Boron	D-5, G-240, M-152, P-6, T-150.
I. Vanadium	C-180, R-210, W-53
J. Aluminum	G-181, P-4, T-60
K. Copper	G-190, K-120, P-4, T-210
L. Silicon	1, L-110, O-1
M. Others (O_2, H_2, N_2, Zr, U)	B-151, M-152, P-6, S-160, T-81, T-210, U-1, Z-90
b. Effect of	
A. Grain size	D-7, M-152, T-80
B. Austenitizing temperature	G-182, H-210, M-150, M-152
C. Homogenization	D-5, M-10, R-151
D. Segregation and banding	D-5, M-14
E. Carburizing	C-185, E-2, I-10, R-185, T-182
F. Overheating and burning	P-180, T-81, W-81, W-110
G. Powdered alloys	K-1
H. Rolling of ingot steel	M-152
I. Induction heating	L-100, M-14
J. Stress	A-220, A-221, J-55
c. Cast irons	N-1, O-1
3. Methods of determining TTT diagrams	
a. Metallographic	D-5
b. Dilatometric	A-140, C-80
c. Welding	P-210
d. Hot hardness	E-140
e. Magnetometric	E-200, R-220
f. Electrical resistance	F-150, M-30
g. X-ray diffraction	H-11, W-180
h. Electron diffraction	
IV. Austenite Transformation	
1. Theory and mechanism	A-145, A-214, A-215, A-221, A-223, B-27, C-153, D-4, D-5, D-160, F-90, F-92, F-131, F-150, G-150, G-180, G-191, H-170, J-1, J-150, J-151, L-15, L-150, M-60, M-200, N-50, N-51, N-100, P-140, P-141, P-221, R-150, S-10, S-110, S-150, S-151, W-50, W-51, W-200, Z-1, Z-50, Z-250
2. To spheroidized cementite	P-1
3. To pearlite	G-183, H-200, P-2
4. To bainite	G-190, W-90
5. To martensite	B-40, C-190, F-1, F-90, H-8, J-10, M-16, M-17, M-90, P-6, S-250
a. M_s—determined	G-186, M-152, P-4, and others
b. Calculated	C-5, G-182, H-161, N-60, P-4, P-6,
c. M_f	G-186, T-181
d. Mechanism of martensite formation	C-154, F-91, G-185, G-186, G-188, J-20, K-210, K-211, M-15, M-16
e. Stability of martensite	L-70
f. Tempering	A-222, C-75, C-155, F-121, G-151, H-161, P-55
6. Retained austenite	A-223, A-224, C-150, C-151, E-123, H-11, T-184
a. Stabilization	C-150, C-151
b. Decomposition	A-222, F-120, F-121, H-10, H-160, T-82
V. Isothermal Heat Treating Practice	
1. General practice	9, B-155, D-8, H-1, P-100, S-60, S-70, S-90, V-2, V-3, W-95
a. Austempering	3, 5, D-6, L-50, O-80, W-251
b. Martempering	A-21, F-1, H-85, O-120, O-121, R-170, S-55, S-86, S-87, S-87a, W-85
c. Cyclic annealing	A-120, A-125, C-160, L-120, M-55, N-150, P-10, S-71, T-60
d. Spheroidizing	P-1, P-2, P-50
e. Bainitic hardening	B-20, B-21, H-161, P-3
f. Modified isothermal	B-154, B-180, F-190, L-60, L-61, S-50
2. Comparison of properties	O-250
a. Static	C-170, D-53, D-57, G-190, P-180, R-50, S-1, S-2
b. Dynamic	B-96, C-100, D-150, F-155, F-180, F-181, J-10, P-180, S-131, T-85
c. Others (machinability, etc.)	8, F-155, P-5, S-87, S-87a
3. Applications	C-153, W-120
a. Tool and high-speed steels	B-30, B-31, C-153, K-150, P-3
b. Forgings	4, 6, A-125, L-121, R-160
c. Welding	A-20, B-152, B-181, H-50, H-52, H-180, L-20, P-210
d. Irons	I-16, L-1, M-220
A. Gray	11, O-80
B. Malleable	B-182, L-110
C. Nodular	A-210
e. Cast steel	E-40, G-50, M-50, R-171, R-180
f. Accuracy	S-88
g. Miscellaneous	A-200, B-1, B-153, C-210, D-60, D-90, D-200, E-120, G-155, H-95, H-150, H-169, M-20, M-80, P-130, S-151, T-180, Z-2
4. Martempering v. conventional hardening	
5. Cost comparison	B-30, D-60, S-35
6. Quenching media and cooling rates	B-156, B-157, D-0, F-51, F-179, L-200, M-153, P-60, P-61, P-142, P-150, P-230, R-155, S-80, S-87, S-87a, T-70, W-80
VI. Continuous Cooling	G-180, G-184, H-50, H-51, H-161, J-1, L-90, L-91, L-92, L-93, L-94, L-95, L-96, L-97, M-5
VII. Hardenability	B-150, C-75, G-184, P-220, R-91, S-30, T-183, V-1, W-94

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2. T-T-T data sheets, Metal Progress, miscellaneous issues.

3. "Austempering in Successful Commercial Operation," Heat Treating and Forging, October 1939, p. 499.

4. "Salt Baths for Forgings," The Iron Age, Newsfront, May 6, 1947.

5. "Austempering and Isothermal Trans-

Turn to Page 448



How to Sell to UNCLE SAM

You need not call your Congressman or rush to Washington in person to sell to the Army, Navy or Air Force. Field offices of various government agencies handle a great deal of buying. Bid lists are easy to get on. More contracts will be negotiated directly as the defense program gets rolling. There are several other major sources for detailed information on government procurement.

Uncle Sam, the nation's biggest buyer, is annually spending billions of dollars for literally millions of items ranging from lead pencils to tanks and planes, from toothpicks to aircraft carriers. Other millions are spent for services from laundry work to research on hydrogen bombs.

Whether they want to help for defense or whether they have been forced to curtail production on account of materials shortages, how to get some of this business is uppermost in many minds—especially among the so-called small businessmen.

There are two ways of selling to the government—by competitive bidding and by negotiated contract. About 85 pct of all peacetime federal procurement was through the bid method.

First, the procurement agency or its office announces that it is in the market for specific quantities of certain goods. Next, suppliers who have these goods or services for sale must obtain bid forms. Finally, the bid forms are filled out in their many parts and mailed to the designated place to be opened on the scheduled date.

It's as simple as that. But the supplier putting in the lowest bid doesn't necessarily get the contract. There was a time when government procurement offices were required to accept the lowest bid. The law has been amended to allow the contract to be given the lowest "responsible" bidder whose bid is judged to be the "most advantageous to the government, price and other factors considered."

This means that the procurement officials are required to make sure that the bidder is a recognized manufacturer or regular dealer, that the product meets government specs, and—if there are restrictions—that the supplier is on the qualified list and that the plant has been approved for restricted or classified work.

Most buying offices keep on file a list of sup-

See p. 371 for a list of major metal products bought by the armed forces. P. 372 carries addresses of the most important offices where these products are bought.



"One must first catch the cat" *(In order to find out who is buying what)*

pliers to whom invitations to bid are sent automatically each time procurements are to be made. (See p. 372 for list of military buying offices.) If it is a long list and purchases are made fairly regularly, the invitations may be sent only to a portion of the list in rotation, that is, in turn.

It is easy to get on these lists. Merely request it in writing; a form will be sent to be filled out and returned. This form indicates the responsibility, the qualifications, and ability to deliver on the part of the supplier.

Inactive Names Are Dropped

But—a supplier should never fail to reply to an invitation to bid. If he isn't interested in that specific contract, the buying office should be notified to that effect. Names are automatically dropped from the mailing list after they are not heard from once or twice.

If the supplier does not have the specifications for the particular item he wants to sell, he should request them. Most procurement offices do not mail specs with invitations to bid unless so requested; they assume that the bidder is familiar with whether his goods meet government requirements.

Although the government normally bought about 15 pct of its supplies through negotiated contracts, there is now an increasing amount of items so obtained and some 15 or so conditions are specified under which contracts may be so made.

Some of the more important conditions are: national emergency, public exigency, procurements totalling less than $1000, supplies or services for which there is no competition, purchases in the interest of national defense or industrial mobilization, and in cases where no bids result after advertising of invitation to bid.

Goods normally bought through negotiated contract include the following: purchases outside the United States, purchases for post exchanges or other authorized resale, perishable subsistence, medicines and medical supplies, classified items, various classifications of technical equipment, personal and professional services, and experimental, development and research work.

Now that the nation is in a declared state of emergency it means that all contracts can be negotiated. To speed up procurement a great many will be negotiated, and the former 15 pct figure will start climbing fast.

Tell What You Can Make

The procedure for obtaining negotiated contracts is somewhat similar to obtaining invitations to bid. In other words, (a) the supplier enrolls or informs the buying office that he would like to sell the government certain items or groups of items; (b) the buying office asks the supplier for all the necessary information, including price quotations and statements of actual or estimated costs or other evidence to show it is a reasonable price; and (c) when such goods are needed, the procurement agent begins negotiations by mail or phone for drawing up of a contract.

An important point concerns obtaining of contracts with the aid of an agent (a full-time employee is not considered an agent) or what is cometimes known as a "five percenter" because he works on a commission basis. There

is no law against employing an agent to look after a supplier's interests or even to obtain government contracts. But, and this is a big if, if such is done it must be reported on the contract together with the amount of the fee paid. Failure to do so is cause for cancellation. And payment on a contingency or commission basis is definitely forbidden—only specific salaries or fees are permitted.

Still another point is that many contracts (those for more than $10,000) must be performed under provisions of the Fair Labor Standards Act. These conditions can be discussed with the procurement office and copies of the Walsh-Healy Act can be obtained from the Labor Dept.

Now, it is a well known maxim that in order to put a bell on the cat, one must first catch the cat. In this case, it is a problem of first finding who is buying what or more particularly, what department wants the widgets that a supplier has to sell.

Don't Rush to Washington

The first impulse of the uninitiated is usually to either write to his Congressman or to rush to Washington in person. In both cases, this is time consuming and the supplier usually ends up by being referred back to the field installation which does the actual buying. The same result can be obtained faster and easier by other means.

There are six major sources of information concerning what the government and, more particularly, what the armed services are buying. The first and best port of call is the nearest field office of the Commerce Dept. It can be contacted by letter, telephone call, or personal visit. (See p. 374 for list of Commerce Dept. field offices.)

These offices are supplied with copies of Department's daily Synopses of Procurement Information. These list the current proposed purchases of both military and civilian type items as well as the procurement office or officer that does the buying.

Because of the cost, the Commerce Dept. does not mail these out individually; arrangements must be made to pick them up. Many local Chambers of Commerce or other business groups have arranged to obtain these for local distribution.

Major Information Sources

There are five other major sources of obtaining procurement information. These are: (a) The Munitions Board; (b) the Army Procurement Information Center; (c) the Office of Navy Materiel; (d) the Air Force Procurement Division; and (e) the Federal Supply Service. The latter, with the exception of stockpile buying, confines its purchases largely to non-military items.

It should be noted in passing that with few exceptions the government buys only finished goods. One exception is procurement of parts for repair or replacement. But the government does not even *recommend* parts suppliers to holders of prime contracts. In other words, a supplier who wants to get a subcontract to supply parts or materials must deal directly with the prime contractor. He won't get any help from Uncle Sam.

However, it is not too difficult to find out the names of potential customers. Here again the Dept. of Commerce and its field offices are useful. In addition to the Synopses already mentioned, it publishes a weekly synopses of Award Information; this lists contract awards of $25,000 or more with the names of the successful bidders.

FOR MORE DETAILS—

Information in this article is necessarily general in nature and limited in scope. More detailed data may be obtained by writing to the following major sources and asking for the publications named in parentheses:

Central Military Procurement Information Office, The Pentagon, Washington 25, D. C. *("Index of Military Purchasing Offices and Guide to Industry in Selling to the Military Departments");*

Army Procurement Information Center, The Pentagon, Washington, *(How to Sell to the U. S. Army);*

Office of Navy Material, Main Navy Building, 17th St., & Constitution Ave., N. W., Washington 25, *(Purchased Items, Navy Purchasing Locations, and Selling to the Navy);*

Air Force Procurement Division, Air Material Command, Wright-Patterson Air Base, Dayton, Ohio, *(Guide for Selling to the U. S. Air Force);*

Federal Supply Inquiry Office, General Services Administration, 7th & D Sts., S. W., Washington 25, *(Basic Facts About Selling to the Government);* and

Senate Select Committee on Small Business, Senate Office Building Washington 25, *(Selling to Your Government).*

TECHNICAL PROGRESS

The Horizon Broadens

Growth of titanium production, heavy nickel plating, dielectric core drying and radioactive cobalt 60 are just a few of the fields in which startling progress occurred. Continuous casting of steel was put into production for the first time and cold extrusion of steel for ordnance items was tooled up and is ready for mass production.

TECHNICAL articles carried in the feature section of THE IRON AGE during 1950 highlight the industry's technological progress and problems during the past year. Late developments not yet fully documented in print are included in this summary. They are woven in to permit a better evaluation of the eventual effect of industry's newest developments.

Titanium still has everyone gasping. The year started off with the country producing laboratory quantities and ended at an annual rate of about 275 net tons productive capacity. For the entire 12 months, only about 60 net tons were made, so that the real expansion occurred in the last half of the year.

The accompanying box lists technical articles on developments as they occurred. The last story in the box of the government's pressure for more of the metal is still up to date as far as commercial aspects are concerned. No single person, company or government agency can predict where titanium is going as technically no one person is entirely up to date, developments are moving too fast. It is acknowledged that the Kroll process will have to be drastically refined or replaced before the present $40,000 per net ton price for titanium sheets can be shaved. The sponge makers are on a hotter seat as the supply of sponge is the present limiting factor to higher titanium metal production. It takes a $1500 capital investment per annual ton of titanium produced. Hence. money is a big road block.

New alloys of high strength, 200,000 psi ultimate strength and over are under development. New processes and additional facilities will continue to pop up. The aircraft industry will take a lion's share of the sheets and bars. AEC is taking practically all the tubing made so far and Navy is vitally interested for marine applications where titanium's superior corrosion resistance is needed. Ordnance so far is just talking, but more fire power per man means lighter weapons and titanium could well be applied in some of these cases not to mention the light weight airborne equipment, tanks, vehicles, etc.

Free machining steels MX and E, which made their appearance early last year, THE IRON AGE, Feb. 2, p. 86 and p. 79, lived up to expectations. Some day they may push the regular Bessemer screw stock out of first place. This might happen very soon. These steels have been under development for 2 or 3 years and, fortunately, arguments about patent rights were forgotten in the final rush to get the product on the mar-

TITANIUM BOOM—

Articles published in The Iron Age during 1950

"Forging and Welding Titanium," Jan. 19, p. 63
"And Now—Titanium Tubing," Apr. 6, p. 85
"Alloys Widen Use of Titanium," July 27, p. 60
"Two New Titanium Alloys Now In Production," Sept. 14, p. 85
"Wanted Huge Titanium Expansion," Nov. 30, p. 87

ket. Another article, THE IRON AGE, May 18, p. 95, from the consumers' viewpoint confirmed all the early claims made by the steelmakers.

Marforming a new press drawing tool, THE IRON AGE, Feb. 23, p. 78, which combines the best features of rubber forming and steel die drawing for deeper draws at lower tool cost was announced. A nice feature of this process is that the sheets can be pre-painted before forming so that in cases finishing costs can be reduced. There are other methods yet to be announced in the deep drawing field which promise to keep the press forming industry particularly active.

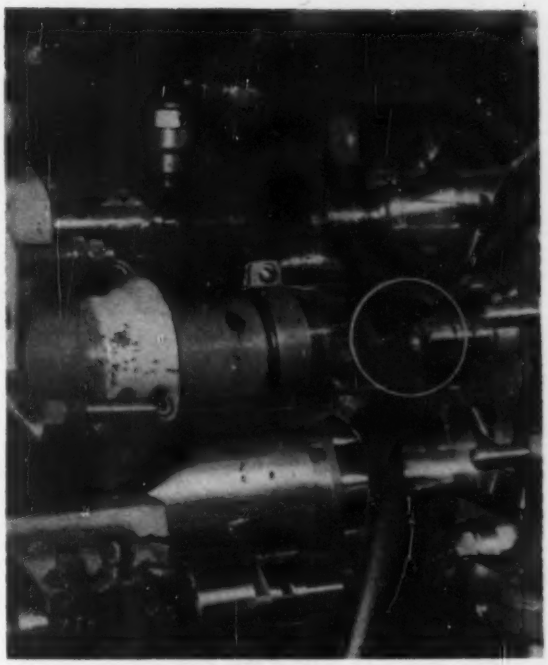
Electroplating, of heavy nickel coating 0.50 in. and over has long been a dream. Last year it came true, THE IRON AGE, Apr. 6, p. 98. Perhaps salvaging of parts was a back door entré, but it was a good way to prove the process. Nickel plating has advantages over chromium plating; nickel plates faster, requires less current, is machinable and has a coefficient of expansion close to that of iron which, when coupled with high ductility, makes nickel suitable in applications involving severe temperature changes.

Sonic Testing of heavy pieces of steel has reached a high state of perfection, THE IRON AGE, Apr. 13, p. 77. Sonic testing is now a standard inspection practice in one plant and is being adopted elsewhere. No longer does the supplier or customer have to wonder about the soundness of large forgings or castings. Sonic testing even charts the size of an interior defect. Going further, a new method of obtaining acoustical images of interiors of large metal objects is under development. Borrowed from the Germans, but being perfected here, this testing method will be the next big development.

The metal powder industry got back on its feet last year, THE IRON AGE, pp. 79-97. New applications and methods have brought these engineering materials into their rightful place of design and application. Copper infiltration of iron powder has raised strength levels. Machining of powder parts is now common and satisfactory plating of powder parts, which are more porous than wrought or cast parts, was perfected. Overseas, iron powder is being successfully prefabricated as semifinished sections for regular wrought steel products. This practice may spread fast, especially in heavy sections of some of the new metals that are such good "getters" in the molten condition.

ONE OF THE LARGEST ductile iron castings produced to date weighs 60,000 lb. This forging hammer anvil was cast of ductile Cecolloy.

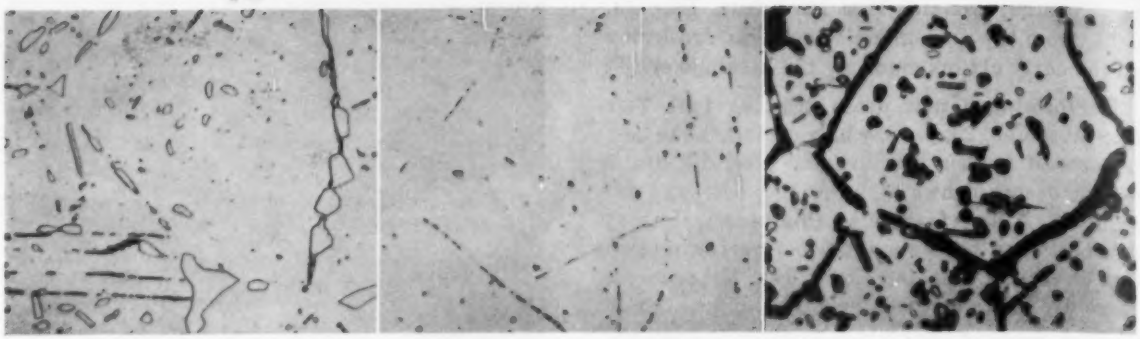




INDUCTION HARDENING is being done on the sixth station of an 8-spindle automatic screw machine. The arbor carrying the induction coil and quench chamber is in the center of the photograph. The coil and piece to be hardened appear within the white circle.

Hot dip galvanizing received a shot in the arm when a new galvanizing furnace which cuts dross formation to the bone was announced. THE IRON AGE, Apr. 13, p. 93. At long last the iron kettles can be discarded and, except for the dross formed by the work itself, the bath will not make dross but instead will coat more product and stretch a given supply of zinc at least 20 pct further. Low frequency induction units and modern refractories made this development possible.

Synthetic core binders and dielectric drying ovens have overcome one of the biggest bottlenecks in foundry operations. THE IRON AGE, May 4, p. 90. The method is cleaner, faster and safer than older methods. Overbaking is impossible and materials handling is drastically cut. Better and more uniform core surfaces are obtained with fewer manhours. Some new installations are pushbutton controlled from start to finish and skilled help is not needed. This isolated improvement should not be confused with the much rumored, but little written



Hydrochloric and picric acids in alcohol. | Alkaline ferricyanide at room temperature for 1 min staining carbide only | Chromic acid electrolytically—3 v. lamp, 15 sec, carbide and sigma attacked.

SIGMA PHASE identification metallographically requires good technique. Actions of different etchants upon 18 Cr-8 Ni-Mo, type 316 stainless containing austenite, carbide and sigma appear above. 850X

about, "C" or Croning process. When all the "t's" are crossed, the lawyers retire and the Croning a-la-American story is fully told, the foundry industry will have reached an ultra-modern, mechanized and highly efficient operation equal to that in any industry.

Glass as an engineering material in the metals field is cracking the ice in ingenious ways. As a heating element the English and Italians swear by it, THE IRON AGE, June 15, p. 95. Reduced carbon electrode consumption, simplification of atmosphere control and fast rates to high temperatures are the chief attraction so far. Yet to come are even more surprising applications of the material we choose to call glass, but which foreigners really exploit for what it is—an undercooled liquid. The secret to the success of the French hot extrusion practice of making steel tubes is glass. Here the glass, molten again, turns up as a lubricant par excellence. With metal shortages ahead of undreamed proportions, glass, even the old wine bottle, will be regurgitated no end by scientists, engineers, purchasing agents, et al in the months to come.

Nodular graphitic irons zoomed into production records in both light and heavy sections, THE IRON AGE, Aug. 3, p. 75 and Aug. 10, p. 79. Serving as a bridge between the properties of cast iron and steel or semisteel, wide use of these new irons were made. Cross-section thicknesses up to 12 in. or down to 3/32 in. are being cast every day and both dimensions are in the state of revision as the industry applies the metal to more parts. Castings as heavy as 30 tons or as light as 1/3 oz are being produced. Melting practices are improving and last year's production is estimated at 20,000 net tons.

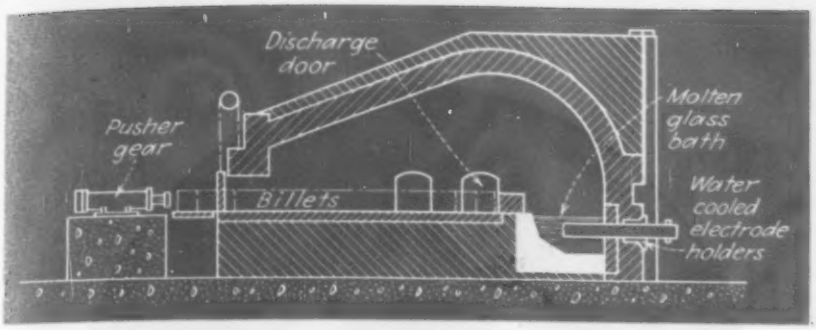
Behind the iron curtain the Russians are very serious about the Korean peninsula, THE IRON AGE, Aug. 3, p. 67 and Aug. 10, p. 65. The 4 billion tons of iron ore, 700 million tons of coking coal, plenty of manganese, tungsten, molybenum and magnesite are enough economic reasons for Russia to sacrifice every able-bodied Chinaman alive if need be to secure the only promising base for large steel production in East Asia. Europe's captured iron and steel facilities are a drain on Russia's natural resources. With only 20 million ingot tons annual steel production within her old boundaries, Russia needs the riches of the Satellite countries. Manchuria and North Korea have the most of what Russia wants.

Induction coils on one station arbor of an 8-spindle automatic screw machine is the latest example of the versatility of tool designers, THE IRON AGE, Aug. 24, p. 65. A completely machined and heat treated piece for every indexing of these high production machines is about as fast as even Detroit's mass production men ever dreamed of. Copper plating, carburizing, drawing, internal grinding and cleaning of a part have been eliminated in the one application completely engineered to date.

Radioactive cobalt 60 once considered a waste or byproduct, is now a lusty infant in one phase of nondestructive testing, THE IRON AGE, Aug. 24, p. 68. Co^{60} is fast replacing radium in the radiographic inspection departments of forging and casting plants. The cobalt isotope can be purchased for less than 2 months' rental cost of radium. Many small shops can now have radiographic inspection at a fraction of former prohibitive high costs.

It costs less to rent than to buy machine tools. A machine tool distributor who decided to think instead of cry about business came up last year with a rental plan for machines that was so solid a Philadelphia bank put up the money, THE IRON AGE, Aug. 31, p. 51. This plan permits deduction of the cost of new machinery as an expense before taxes which came as a surprise to a lot of industrialists as well as the Treasury Dept.

OH and BF designs are changing. Last year



A MOLTEN GLASS bath at the discharge end is used in this pusher-type billet reheating furnace. Other types of reheating furnaces are in operation overseas.

the Japanese built an openhearth without a front wall, the English ran carbon brick linings all the way up to the throat of some blast furnaces and a wellknown American designed an all-welded shower-cooled carbon-lined O_2 fed blast furnace that promises more iron for less money, THE IRON AGE, Sept. 21, p. 85, 88 and 93. Faster scrap charging is the main feature of the new openhearth. Charging machines are burning out their bearings trying to keep up with O_2 melting practices. An American openhearth plant was built last year with one thing in mind, faster scrap charging via elevators; they still have a front wall.

Higher top pressures, O_2 in the blast and other improvements in squeezing more iron from blast furnaces may really pay off soon. A furnace designed primarily to use the new improvements may be built this year. Before the dust settles on this development, the coke charge may be cut as much as 1/3 per ton of iron produced. Some of the sulfur troubles now plaguing the steelmaker will be reduced when this program is put into practice.

Cold extrusion saves steel, critical alloys and produces parts with a better surface than can be had by machining, THE IRON AGE, Oct. 19, p. 69. Given impetus by the Ordnance Dept., this 5 in 1 process promises wide application. The fourth advantage is that strengths up to about 110,000 psi U. S. ultimate strength can be achieved without heat treatment. The fifth attraction is that precise tolerances are a natural function of the process and much machining is obviated. From here on, the process will be kept slightly under wraps. Exact pressures required, punch speeds, punch and die design, and lubrication details are now considered classified information. Press makers who neglected to pay serious attention to this development have done an abrupt about face. More plants will be built. Natural products for the process are those of cylindrical or tubular shape. Adherents to older methods of forming who have been somewhat resentful of the new method have an uphill battle ahead as long as steel and alloys are in short supply.

Sigma phase, nightmare of the stainless metallurgist, continued to haunt the industry, THE IRON AGE, Nov. 30, p. 63 and Dec. 7, p. 127. It even scared the testing engineers at the Atlantic City annual meeting. Methods of identification, effects on properties and causes of formation, however, were more clearly defined late in the year and some of the mysteries are beginning to be understood. Some of the stabilizers used to inhibit intergranular corrosion cause more sigma to form. That is bad enough, but last year tantalum started to appear in ever-increasing amounts which, for a while, caused some consternation to users and makers of type 347. Latest research shows that most of these fears were ill founded. The two alternates, the titanium grade 321 or low-carbon 18 8, also can be used judiciously when necessary and the industry is expected to be more calm this year provided they can get nickel and chromium to make it stainless in the first place.

Continuous casting of steel reached a new high last year, THE IRON AGE, Dec. 28, p. 66. Two new plants were authorized and another will be completed by late 1951. Savings as high as $100 a ton on special grades are predicted by continuous casting methods over former steelmaking practice. The mold is "the thing." The two major exponents of the process as a process agree only on the fact that continuous casting is the coming steelmaking method. From there on, there are two very distinct schools of thought. The black horse in the race may be the moving mold idea but to date, this process has yet to prove itself on aluminum. Aluminum shapes up to 10x48 in. are being continuous cast abroad. Steel sections of 3x15 in. are in production in this country. Molds to produce 100 sq in. sections in rectangular and oval form are being designed. A new company of former steel company officials is in the process of incorporating and building a plant to make slabs by a process as yet unannounced. Machines to continuous cast aluminum billets in 1-in. equilateral triangles, has been sold to the British. One such American unit is operating and another machine will arrive here in the spring. Someone is going to prove who is right in the approach to continuous casting steel before the year is out and the stakes are pretty high.



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1951 THE IRON AGE METAL INDUSTRY FACTS

SECTION 1 Steel Production, Prices and Markets—Page 285.

SECTION 2 Nonferrous Production, Prices, Markets—Page 299.

SECTION 3 Raw Materials, Ore, Scrap, Coal and Coke—Page 309.

SECTION 4 Metal Products, Automotive, Railroad—Page 323.

SECTION 5 Casting, Forging, Powder Metallurgy—Page 337.

SECTION 6 Machine Tools, Welding—Page 345.

SECTION 7 Market and Product Research Data—Page 351.

SECTION 8 Labor, Safety—Page 357.

You and Government Controls Page 365.

Military Buying Page 371.

COMPLETE INDEX TO FACTS

A

Accidents to All Workers, 1948-1949 363

Accidents, see also Injuries

Aircraft Industry, Employment, Wages 329

Air Pollution Control Ordinances, Check List 344

Alloy Steel, see Steel, Alloy

Alloying Materials, Use of 322

Alloys, High Temperature Jet Engine, Analyses 340

Aluminum
- Exports, U. S. 300
- Imports, U. S. 300
- Production, U. S. 300
- Production, World, Since 1941 ... 301

Aluminum Castings, Shipments and Unfilled Orders 300, 341

Aluminum Extruded Shapes, Shipments 301

Aluminum Prices
- Cast Scrap 300
- Ingot, Remelt, No. 12 300
- 99 Pct Plus 301

Aluminum Refining Industry, Hours and Earnings 363

Aluminum Scrap, Cast, Prices 300

Aluminum, Secondary, Recovery of 300

Aluminum Wrought Products, Shipments 300

Antimony
- Imports by U. S. 303
- Prices, 1929-1950 304
- Production, U. S. 304
- Production, World 303

Appliance Employment 331

Appliances, Domestic Cooking, Shipments 330

Appliances, Electrical
- Index of Sales 331
- Steel Products Used in 324

Appliances, Electrical, Industry
- Employment, Hours, Earnings ... 331
- No. of Establishments and Sales 336
- Shipments of Steel Products 324

Appliances, Heating, Shipments ... 330

Appliances, Household
- Sales and Retail Value, 1940-48 . 330

Armed Forces
- Buying Offices 371
- Products Bought by 371

Automobile
- Alloys Steels in 325
- Steel for Parts 324
- Steel Used in a Typical 325
- What Makes an Auto 325

Automobile Industry
- Employment, Wages 326
- Steel Shipped to 326
- Steel Used 324

B

Bars
- Cold Finished Steel, Prices Pittsburgh 294
- Hot-Rolled, Shipments 295
- Merchant, Prices, Pittsburgh ... 294

Bauxite, Imports into U. S. 301

Bearings, Ball, Imports 346

Bearings, Roller, Imports 346

Blast Furnace Capacity, 1950 297

Blast Furnace Capacity, 1938-50 ... 310

Blast Furnace Production, Canadian 311

Blast Furnaces, Material Used in Pig Iron Production, 1949 310

Boilers and Radiation, Cast Iron, Shipments 340

Brass Ingots
- 85-5-5-5 (115), Prices 303
- Shipments 303

Brass Scrap, Prices 303

Brazing Depts., Number Operated 348

Brick, see Specific Type

Bronze Ingots
- 88-10-2 (245), Prices 303
- Shipments 303

Buffing Depts., Number Operated . 356

Business Sales and Inventories, 1935-50 334

C

Cadmium
- Exports, U. S. 307
- Imports by U. S. 307
- Prices 307
- Production, U. S. 307

Carbide Tool Use in Cutting Tools
- Amount and Trend 355

Cars, Freight, Delivered, 1913-50 328

Cars, Railroad Passenger, Ordered, 1929-50 328

Cast Iron Pipe, Shipments 339

Cast Iron Radiation Shipments ... 340

Castings, see Specific Type and Metal

Chrome Brick, Chemically Bonded, Prices 321

Chromite
- Imports 320
- Ore Shipments 320
- World Production 320

Coal
- Consumption, U. S. 1930-50 ... 317
- Exports, U. S. 317
- Production, U. S. 317
- Used in Steelmaking 322
- World Reserves 314

Coal Employment and Wages 316

Cobalt
- Consumption, U. S. 305
- Prices 305
- World Output 305

Coke
- Blast Furnace Receipts 318
- Consumption by Blast Furnaces, 1938-49 318
- Consumption in Steelmaking ... 318
- Production, U. S. 1928-50 ... 318
- U. S. Foreign Trade 318

Coke and Byproducts Industry, Employment, Hours, Earnings 362

Coke Prices
- Foundry, Connellsville 318
- Furnace, Connellsville 318

Construction, Expenditures for New 333

Consumers Expenditures, Classified, 1935-49 334

Consumer Goods, Expenditures, 1935-50 334

Consumers' Price Index 361

Controls, Government 365

Conveying Equipment, Sales Index 349

Copper
- Consumption of Refined 302
- Exports of Refined, U. S. 302
- Imports, U. S. 302
- Mine Production, U. S. 302
- Production of Crude, U. S. ... 302
- World Production 301

Copper Castings, Shipments 341

Copper, Electrolytic, Prices, Conn. Valley 302

Copper Powder
- Prices 342
- Shipments 342

Copper Scrap, No. 1 Heavy, Prices 302

Copper, Secondary, Recovery 302

Cutting Tools
- Carbide Tool Use 355
- Industry Groups Surveyed 355

D

Death Rates by Industries 363

Death Rates, Occupational, 1933-49 363

Defense Loans 366

Defense Orders
- Ratings, How to Apply or Extend. 366
- Numbers 369

Degreasing or Washing Depts., Number Operated 356

Die Casting Depts., Number Operated 343

Diecastings, Copper, Shipments ... 341

Diecastings, Lead, Shipments 341

Diecastings, Zinc, Shipments 341

Diecastings, see also Specific Metal Castings

Distributor and Jobber Sales 336

Durable Goods Industries, Employment, Hours, Earnings 358

Dwellings, New by Type and Number of Families 332

E

Earnings, Spendable Weekly, of Workers ... 363
Earnings, see also Pay Rolls
Electric Motors, Exports, Quantity and Value ... 346
Electric Power Consumption ... 322
Electric Power Production, 1935-50 ... 331
Electrical Equipment Makers, Steel Used by ... 349
Electrical Goods, No. of Establishments and Sales ... 336
Electrode, Welding, Shipments ... 348
Electroplating Depts., Number Operated ... 356
Employees in Selected Industry Groups ... 359
Employment
- Federal Civilian ... 361
- Federal Civilian Pay Rolls ... 361
- In Metalworking Industry ... 360

Exports, see Specific Product

F

Fabricated Structural Steel, Estimated Bookings ... 291
Farm Machinery, Manufacture ... 327
Farm Machinery, Wages ... 335
Farm Tractor Sales and Output ... 334
Farm Tractors by Age ... 335
Federal Civilian Payrolls ... 361
Federal Civilian Workers ... 361
Ferroalloy Production, Canada ... 311
Ferromanganese
- Shipments by U. S. Furnaces ... 321
- 80 Pct, Prices ... 320

Ferrosilicon
- 50 Pct, Prices ... 320
- Imports, U. S. ... 321
- Production by U. S. Furnaces ... 321

Field Offices, U. S. Dept. of Commerce ... 374
Financial Analysis of the Steel Industry ... 296
Finished Steel
- Canadian, Production and Shipments ... 290
- Iron Age Composite Price ... 292

Fire Clay Brick, Prices ... 321
Fluxes, Use in Steelmaking ... 322
Forge Shops, Number Operated ... 343
Forging Industry, Earnings ... 340
Forgings, Steel, see Steel Forgings
Foundries, Gray Iron
- Earnings and Hours ... 338
- Number Operated ... 343

Foundries, Iron and Steel, Employment and Earnings ... 338
Foundries, Malleable Iron
- Number Operated ... 343

Foundries, Nonferrous
- Labor ... 341
- Number Operated ... 343

Foundries, Steel
- Employment Hours, Earnings ... 338
- Number Operated ... 343

Foundry Equipment Orders and Shipments ... 340
Freight Car Carrying Capacity, 1929-50 ... 327
Freight Car Steel Requirements ... 327
Freight Cars Delivered, 1913-50 ... 328
Freight, Revenue, Cars Loaded, 1929-50 ... 328
Fuel Oil Consumption ... 322
Furnaces, Industrial, Sales ... 341

G

Galvanizing or Tinning Depts., Number Operated ... 356
Gas, Natural, Consumption ... 322
Gear Orders, Index ... 347
Generators and Motors, Integral HP, Index of Orders ... 331
Government Controls ... 365
Government Procurement ... 371
Gray Iron Castings, Shipments ... 339
Gray Iron Castings Industry, Hours, Earnings ... 338

H

Hardware, No. of Establishments and Sales ... 336
Hardware, Retail Sales ... 329
Heat Treating Depts., Number Operated ... 343
Houses
- FHA Analysis of Construction Components ... 332
- New, by Type and Number of Families ... 332
- What Made of ... 332

Household Appliances, see Appliances
Housing, New Non-Farm Units Started ... 333

I

Imports, see Specific Product
Income, Personal, Disposition of, 1939-49 ... 335
Industrial Production, Federal Reserve Index, 1935-50 ... 329
Industrial Truck Shipments ... 349
Ingots, see Specific Metal
Injuries
- Unsafe Acts and Causes of Permanent Disabilities and Deaths, 1937 to 1941 ... 364
- See also Accidents

Injury Rates by Industries, 1935-1939 to 1949 ... 364
Injury Rates by Industry, 1949 ... 362
Iron Mining Employment, Wages ... 311
Iron Ore
- Consumption, U. S. ... 313
- Imports ... 315
- Production, U. S. 1939-50 ... 315
- Production, World ... 315
- Reserves of Minnesota ... 322
- World Resources ... 314

Iron Ore, Beneficiated, Shipments, 1930-50 ... 322
Iron Ores, Lake Superior
- Analyses ... 313
- Prices ... 313
- Shipments ... 313

Iron Powder
- Prices ... 342
- Imports from Sweden ... 342
- Shipments ... 342

J

Jet-Engine Alloys, High Temperature, Analyses ... 340
Jobber and Distributor Sales ... 336

L

Labor Force, U. S.
- Total, by Employment Status ... 359

Lacquering and Painting Depts., Number Operated ... 356
Lathe, Turret, Steel Used in ... 324
Lead Powder, Shipments ... 342
Lead, Prices, N. Y. ... 305
Lead, Secondary, Recovery in U. S. ... 308
Loans, Defense ... 366
Locomotives Ordered in U. S. ... 326

M

Machine Tool Industry, Workers ... 349
Machine Tool Labor ... 349
Machine Tools
- Exports, by Country of Destination ... 350
- Exports by Types ... 350
- Index of Orders and Shipments ... 346
- Production of Selected Types ... 347

Machinery, Agricultural, Industry Employment and Wages ... 335
Machinery and Equipment, Electrical, Steel Products Shipments to ... 349
Machinery, Electrical, Industry Employment, and Earnings ... 360
Machinery, Farm, Manufacture ... 327
Machinery, Farm, Wages ... 335
Machinery, Industrial, Equipment, No. of Establishments and Sales ... 336

COMPLETE INDEX CONTINUED

Machinery Makers' Sales 347

Machinery Manufacturers (Except Electrical) Corporate Sales and Profits 347
Financial Data 347

Machinery, Metalworking, Industry, Employment, Hours Earnings .. 363

Magnesite Brick Prices
Burned, Baltimore 321
Chemically Bonded, Baltimore 321

Magnesium
99.8 Pct Plus, Prices 307
Consumption 306
Output and Use 306
Production, U. S. 306
Production, World 306

Magnesium Castings, Shipments and Unfilled Orders 341

Magnesium, Secondary, Recovery. 307

Malleable Castings, Industry, Hours, Earnings 338

Malleable Castings, Production, Shipments and Orders Booked. 339

Manganese Ore
Imports for Consumption, U. S. . 319
Shipments by U. S. 319
World Production 319

Manganiferous Ores, Shipments by U. S. Producers 319

Manfacturing, All, Employment and Wages 361

Manufacturing Industries
Employees by State 358
Indexes of Production-Worker .. 362
Spendable Weekly Earnings 363

Materials Handling Equipment
Present and Future Use 353
Who Selects Types 353

Mechanical Rubber Goods, Use by Metalworking Industry 352

Mercury, World Production 308

Metal, All, Mining, Employment and Earnings 358

Metal Powder Part Plants, Number Operated 342

Metal Products, Fabricated, Industry, Employment, Hours and Earnings 358

Metal Washing Depts., Number Operated 356

Metal Work, No. of Establishments and Sales 336

Metalworking Equipment Makers, Steel Used by 346

Metalworking Industry, Employment 360

Metalworking Machinery Industry, Employment, Hours, Earnings. 363

Military Procurement 371

Mining, All, Industries, Productivity 362

Mining, All Metal, Industry Employment, Hours and Earnings 358

Mining Industries, Productivity ... 362

Mining, Iron, Industry, Employment and Wages 358

Molybdenum
U. S. Production 308
World Production 308

Motors and Generators, Integral Hp, Index of Orders 331

N

National Debt Outstanding 335

National Production Authority
Iron and Steel Div. Personnel ... 370
Regulations 365

Natural Gas Consumption 322

Nickel
Consumption, U. S. 304
Imported by U. S. 304
Production, U. S. 304
Production, World 304

Nickel, Electrolytic, Prices 304

Nonferrous Metal Finishing Industry, Employment, Hours, Earnings 308

Nonferrous Metal Manufacturing Industry, Employment, Hours, Earnings 308

Nonferrous Metals Consumption ... 322

O

Oil, Fuel, Consumption 322

Openhearth Furnaces, Installed in 1950 297

P

Painting and Lacquering Depts., Number Operated 356

Passenger Car, Steel in 325

Pay Rolls, Federal Civilian 361

Pickling Depts., Number Operated 356

Pig Iron
Canadian Capacity 311
Exports, U. S. 310
Imports, U. S. 310

Pig Iron Prices
Basic, Mahoning or Shenango Valley 312
Charcoal, Chicago 312
Composite 312
Malleable, Mahoning or Shenango Valley 313
No. 2 Foundry, Birmingham ... 312
No. 2 Foundry, Buffalo 313
No. 2 Foundry, Chicago 313
No. 2 Foundry, Granite City 312
No. 2 Foundry, Mahoning or Shenango Valley 312

Pig Iron Production
by States 311
Canadian 311
in 22 Countries 310
Material Used by Blast Furnaces, 1949 310
Number of Blast Furnaces Used, by State 310
U. S. 311
World 310

Pipe and Tubing, Shipments 295

Pipe, Buttweld Steel, Prices Pittsburgh 294

Pipe, Cast Iron, Shipments 339

Pipe, Cast Iron Water, Prices, N. Y. 294

Pipe, Soil and Pressure, Gray Iron Shipments 339

Plant Amortization 365

Plant, Equipment Spending 333

Plant Workers, Index of 362

Plastics
Future Trend in Use 354
Use of Molded Types 354
Used by Metalworking Industry, 1949 354

Plates
Prices, Pittsburgh 293
Shipments 295

Plumbing, Heating Equipment, No. of Establishments and Sales.. 336

Polishing Depts., Number Operated 356

Powder Metal, see Specific Metal

Power Transmission
Use and Trend 353
Who Selects Equipment 353

Pressed Metal Earnings 341

Procurement, Government 371

Procurement, Military 371

Production, Industrial, Federal Reserve Index, 1935-50 329

Productivity in All Mining Industries 362

Products Bought by Armed Forces 371

R

Radiation, Cast Iron, Shipments... 340

Railroad Equipment Employment.. 326

Railroad Locomotives Ordered 326

Railroad Passenger Cars
Ordered, 1929-50 328
Steel Used in 326

Railroads, Employment and Wages 328

Rail Steel, Re-rolled, Shipments... 297

Rails, Steel, Prices Pittsburgh..... 293

Refrigerator, Steel Used in..... 325

Refrigerators, Household, Index of Sales, 1934-50 330

Rolling Mill Installations, 1950..... 297

Rolling Mills Dismantled, 1950..... 297

Rubber Goods, Mechanical, Use by Metalworking Industry 352

S

Sales, Business, and Inventories, 1935-1950 334
Sales, Distributor and Jobber 336
Sand Blasting Depts. Number Operated 356
Scrap
Consumers' Inventories 316
Consumption, U. S. 1910-50 317
Scrap, Iron and Steel, No. of Establishments and Sales 336
Scrap Prices
Aluminum 300
Brass 303
Composite 317
Copper 302
No. 1 Heavy Melting, Chicago .. 316
No. 1 Heavy Melting, Philadelphia 316
No. 1 Heavy Melting, Pittsburgh. 316
No. 1 Machinery Cast, Chicago .. 316
No. 1 Machinery Cast, Cincinnati 316
Shapes, Extruded Aluminum, Shipments 301
Shapes, Structural Steel Prices, Pittsburgh 294
Shapes, Structural Shipments 295
Sheetmetal Departments, Number Operated 343
Sheets, Cold-Rolled, Prices, Pittsburgh 292
Shipments 295
Sheets, Galvanized, Prices, Pittsburgh 292
Shipments 295
Sheets, Hot Rolled, Prices, Pittsburgh 292
Shipments 295
Sheets, Stainless Steel No. 304, Prices 294
Shipbuilding Industry, Employment, Wages 329
Silica Brick, Prices 321
Spiegeleisen, 19 to 21 Pct, Prices.. 320
Spiegeleisen Production, U. S. 321
Stainless Steel
Ingot Production by Type Nos. .. 287
Sheets No. 304, Prices 294
Shipments 289
Stamping Depts.
Number Operated 342
Steel
Capacity 286
Distribution by Consuming Industries 288
Exports, 1937-1950 298
Imports, 1937-1950 298
Operating Rates 286
Operating Rates, Pct of Capacity 287
Production 286
Steel, Alloy
in Auto 325
Ingot Production 287
Shipments 290
Steel Castings
Production, Sales, Orders by Type 338
Shipments 339
Shipments by Types of Furnace and Grade 339
Steel Castings Industry
Hours, Earnings 338
Steel Consumption
by Auto Industry 324
by Electrical Equipment Makers 349
by Metalworking Equipment Makers 346
for Automobile Parts 324
for R. R. Freight Cars 327
for R. R. Passenger Cars 326
in a Container 324
in a Piano 325
in a Refrigerator 325
in Homes 324
in Passenger Car 325
in Turret Lathe 324
per Railroad Freight Car 327
Products Used in Electrical Appliances 324
Used in a Typical Automobile .. 325
Steel, Fabricated Structural, Estimated Bookings 291
Steel, Finished, Composite Price .. 292
Steel Forgings Industry, Earnings, Hours 340
Steel Forgings, Shipments by Type 340
Steel Industry
Employees, Hours, Earnings 291
Financial Analysis 296
Steel Ingots
Production 286
U. S. Production 286
Steelmaking
Capacity Installed in 1950 297
Consumption of Alloy Materials.. 322
Consumption of Coal 322
Consumption of Coke 318
Openhearth Furnaces Installed, 1950 297
Use of Fluxes 322
Steel Mills, Employment and Wages 291
Steel Prices 292, 293, 294
Steel Production
Alloy Steel Ingots 287
Capacity 286
Ingots 286
Operating Rates 286
Operating Rates, Pct of Capacity 287
Per Capita 286
World 287
Steel Production, Canadian
Ingot Capacity and Production . 290
Ingots and Steel for Castings ... 290
Steel Products
Shipments 295
Shipments and Production for Sale 288
Used in Electrical Appliances... 324
Steel Rails, Prices, Pittsburgh 293
Steel, Re-rolled Rail, Shipments ... 297
Steel, Rolled and Drawn, Consumption 288
Steel Rolling Mill Installations, 1950 297
Steel Rolling Mills Dismantled during 1950 297
Strip, Cold-Rolled
Prices, Pittsburgh 293
Shipments 295
Strip, Hot Rolled
Prices, Pittsburgh 293
Shipments 295
Structural Steel, Fabricated, Estimated Bookings 291

T

Tar and Pitch Consumption 322
Testing, Physical, Depts., Number Operated 356
Tin, Straits, Prices, N. Y. 305
Tinning or Galvanizing Depts., Number Operated 356
Tinplate, Prices, Pittsburgh 293
Tool Steel, High Speed, Prices 294
Tools, Cutting
Carbide Tool Use 355
Industry Groups Surveyed 355
Tractors, see Farm Tractors
Transportation, Earnings 363
Transportation Spending 333
Truck and Trailer Production, Shipments, 1946-49 329
Truck, Industrial, Shipments 349
Tubing, see Pipe and Tubing
Turret Lathe, Steel Used in 324

U

Unions, Total Members 1897-1949... 358
U. S. Dept. of Commerce, Field Offices 374

V

Vacuum Cleaner Sales, 1929-50.... 331
Vanadium Ore
U. S. Production 308
World Production 308

W

Washing or Degreasing Depts., Number Operating 356
Welding, Arc, Machine Orders ... 348
Welding, Arc or Gas, Shops Number Operated 348
Welding, Arc, Set Orders 348
Welding Electrode Shipments 348
Welding, Resistance, Shops, Number Operated 348
Wire and Wire Products, Shipments 295
Wire, Bright, Prices, Pittsburgh ... 294
Work Stoppages, 1927-1950 360
Workers
Federal Civilian 361
Indexes of Plant 362
Spendable Weekly Earnings ... 363

Z

Zinc
Exports 307
Imports into U. S. 306
Prime Western, Prices at N. Y.... 307
Zinc Castings, Shipments 341
Zinc Powder, Prices 342
Zinc, Slab, Consumption by Industry 306



IMPORTANT EVENTS OF THE YEAR

Markets and Prices

Jan. 12—Machine tool shipment index reaches postwar low of 52.8, reflecting order low reached in July 1949, and begins uninterrupted upturn.

Mar. 13—RFC withdraws fixed price quotations on tin; adopts basis of selling on weekly average price.

May 31—Nickel price advances 8¢ to 48¢ per lb.

June 16—President Truman vetoes freight absorption bill.

June 25—Invasion of South Korea starts metals in rising price spiral.

Aug. 31—Iron Age reports new lease plan for new machine tools and other production equipment.

Sept. 7—National Machine Tool Builders Assn. backs up Winston Churchill's blast against sale of machine tools to Iron Curtain countries.

Sept. 12—Formula prices set on steelmaking scrap as mills try to hold price line. Formula tops on No. 1 heavy melting: Pittsburgh, $44; Chicago, $40; Detroit, $37.50; Philadelphia, $39; and Cleveland, $43.50.

Sept. 21—Steel gray market stronger; cold-rolled sheets bringing up to $360 per ton.

Sept. 30—Dow Chemical Co. announces new magnesium ingot price of 24.5¢ per lb.

Oct. 2—Last two copper producers raise prices to 24.5¢ per lb. Import duty of 2¢ per lb, which went back into effect July 1, brings imported metal to 26.5¢.

Oct. 3—Kaiser Aluminum & Chemical Co. and Reynolds Metals Co. follow Aluminum Co. of America in increasing aluminum ingot price to 19¢ per lb. This followed a ½¢ increase May 19.

Oct. 20—Titanium Metals Corp. of America establishes mill prices and sets up standards and extras for titanium metal products.

Nov. 21—Ferromanganese prices advance again to $181.20. Previous advance, Nov. 14, was to $178.60 per gross ton.

Nov. 8—Tin hits peak of $1.55 per lb.

Dec. 1—Steel prices advanced. Iron Age base price composite rises $5.88 a ton.

Dec. 2—Tool steel prices advance by 10 pct.

Dec. 5—General Motors says 1951 car prices will go up about 5 pct, setting off rhubarb with Washington, which replied with Ceiling Price Regulation No. 1.

Dec. 6—Scrap buying prices raised by mills, sending The Iron Age scrap composite to $45.08 on Dec. 12 and to $45.13 a week later.

Dec. 7—Steel gray market prices continue to soar; averages reported around $400 per ton.

Dec. 7—The Iron Age pig iron composite jumps from November's $49.69 to $51.94 per gross ton.

Dec. 13—Nickel price advances 2½¢ to 50½¢ per lb.

Dec. 14—The Iron Age pig iron composite advances to $52.69 a gross ton as all producers complete price increases.

Dec. 14—Lake Superior iron ore prices rise 60¢ a ton. Old range non-bessemer becomes $8.55 a ton and old range bessemer, $8.70 per gross ton.

Production

Feb. 2—U. S. Steel Corp. to build eastern mill near Trenton, N. J. Bethlehem Steel Co. to boost Sparrows Point flat-rolled capacity by 40 pct.

Apr. 20—A Venezuelan iron ore mountain, San Isidro, near U. S. Steel's fabulous Cerro Bolivar, contains more than 300 million tons of ore, Iron Age discloses. In no other recent year has the steel industry been so energetic or so successful in its search for new ore bodies to replace dwindling Lake Superior reserves.

Apr. 27—First gas turbine power plant for an automotive vehicle revealed as Boeing Aircraft announces completion of tests on 200-hp gas turbine for trucks.

Oct. 2—Steel industry plans to expand capacity to 109,963,000 net tons by end of 1952, an increase of 9.4 million net tons over July 1 1950 capacity.

Oct. 19—Preliminary construction of the Quebec-Labrador iron ore project starts by the Hanna-Hollinger group of five companies. Contracts for railroad and docks let and financing arranged.

Nov. 23—Steel industry started this year to build up its coke capacity. Contracts for about 400 new byproduct ovens—with capacity of 2,240,000 net tons of coke—were let in 1950. This does not include oven replacement and rebuilding.

Dec. 2—First pig from reactivated Badin, N. C., Alcoa plant is presented to Jess Larson, General Service Administrator. Capacity expansion of 320,000 tons planned by members of aluminum industry along with reactivation of 79,000 tons of idle capacity.

Dec. 31—Auto production in 1950 exceeded 1949 figures by over a million units, despite hampering strikes and material shortages.

Labor

Mar. 9—Coal strike during February cost 1 million tons of steel production.

May 4—Chrysler Corp. lost production worth $1,022 billion during a 100-day strike (started Jan. 25). Chrysler and supplier plant employees lost an estimated $115.4 million in wages.

Aug. 1—A pronounced influx of labor into the aircraft industry became obvious, with expanding aircraft production programs.

Aug. 31—General Motors escalator clause gains more adherents.

Aug. 31—Weirton Steel labor harmony stalls USWA organizing.

Sept. 7—Fifth round labor pattern: 5 to 10¢ an hr plus cost of living adjustments and $125 pension.

Sept. 28—Aluminum Co. of America offers 10 pct wage increase effective first week in October.

Oct. 12—Most steelworkers decline retirement at 65. With 40 pct of those eligible still on the job, the actuaries have a new problem.

Nov. 9—Skilled labor in tool and die industry not available for big programs ahead. Youngsters can't be trained as Selective Service will get them.

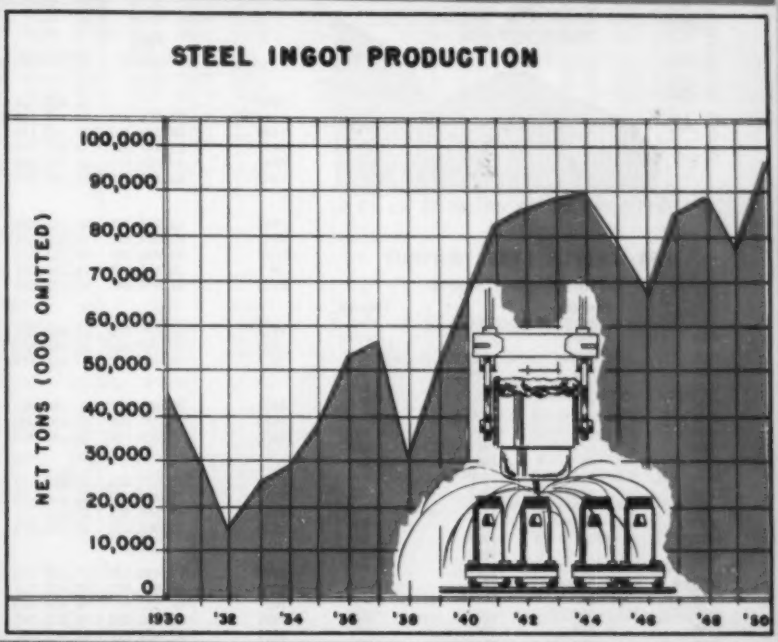
Dec. 1—Steel wages raised average of 16¢ an hr.

THE IRON AGE

SECTION 1

METAL INDUSTRY FACTS

Steel Production, Prices and Markets



IN THIS SECTION:

CANADIAN IRON & STEEL — Page
- Finished Steel Shipments 290
- Steel Production 290
- Steelmaking Capacity 290

CAPACITY
- Canadian 290
- Dismantled Rolling Mills 297
- New Installations
  - Rolling Mill 297
  - Steelmaking 297
- Steelmaking 286

CAPACITY, NEW
- Rolling Mills 297
- Steelmaking 297

CONSUMPTION
- By Metalworking Industry 289
- By Consuming Industries 288

DISMANTLED FACILITIES
- Rolling Mills 297

EMPLOYMENT
- Hours, Earnings, Rates 291

EXPORTS 298

FABRICATED STRUCTURAL BOOKINGS 291

FINANCIAL ANALYSIS 296

IMPORTS 298

INGOT PRODUCTION
- Alloy Steel 287
- Stainless Steel 287
- Steel 286
- World Production 287

OPERATING RATES 287

PRICES
- Bars
  - Cold-finished 294
  - Merchant 294
- Finished Steel Composite 292
- Pipe
  - Butweld 294
  - Cast Iron Water 294
- Plates 293
- Rails 293
- Sheets
  - Cold-rolled 292
  - Galvanized 292
  - Hot-rolled 292
  - Stainless Steel 294
- Strip
  - Cold-rolled 293
  - Hot-rolled 293
- Structural Steel Shapes 294
- Tinplate 293
- Tool Steel, High Speed 294
- Wire, Mfrs'., Bright 294

PRODUCTION
- Canadian 290
- Fabricated Structural Steel 291
- Ingots
  - Alloy Steel 287
  - Stainless Steel 287
  - Steel 286
  - World Production 287
- Tool Steel 290
- Tool Steel, High Speed 290

REROLLED RAIL STEEL 297

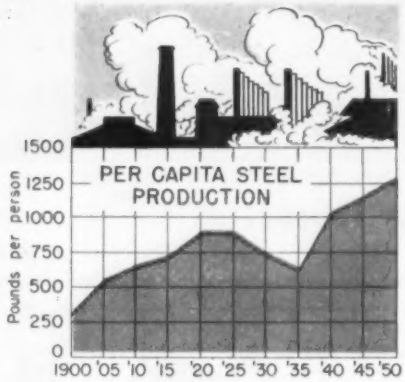
SHIPMENTS
- Alloy Steel 290
- Canadian Finished Steel 290
- Finished Steel 288
- High Speed and Tool Steel Bars 290
- Rerolled Rail Steel 297
- Stainless Steel 289
- Warehouses, Shipped To 295

STAINLESS STEEL
- Ingots Produced 287
- Prices, Sheets 294
- Shipments 289

WAREHOUSES, STEEL SHIPMENTS TO 295

1 METAL FACTS SECTION

Steel Capacity, Production, Operating Rates, Per Capita Production.



PER CAPITA STEEL OUTPUT

Of the United States

Year	Pounds Per Person	Year	Pounds Per Person
1900	300	1925	878
1901	389	1926	921
1902	423	1927	816
1903	404	1928	958
1904	367	1929	1038
1905	535	1930	741
1906	613	1931	469
1907	602	1932	245
1908	354	1933	414
1909	593	1934	462
1910	633	1935	600
1911	565	1936	836
1912	734	1937	879
1913	712	1938	489
1914	531	1939	807
1915	716	1940	1015
1916	940	1941	1244
1917	976	1942	1278
1918	953	1943	1302
1919	739	1944	1298
1920	886	1945	1142
1921	408	1946	949
1922	725	1947	1184
1923	899	1948	1213
1924	745	1949	1036
		1950	1283*

* Estimated.

STEEL CAPACITY, PRODUCTION AND RATES

Ingots and Steel for Castings, Net Tons

		Openhearth		Bessemer		Electric*		Total	
	Total Capacity	Production	Percent of Total Output	Production	Percent of Total Output	Production	Percent of Total Output	Production	Percent of Capacity
1950†	**	86,483,134	89.2	4,556,847	4.7	5,941,205	6.1	96,954,186	97.0
1949	96,120,930	70,248,803	90.1	3,946,656	5.1	3,782,717	4.8	77,978,176	81.1
1948	94,243,460	79,340,157	89.5	4,243,172	4.8	5,057,141	5.7	88,640,470	94.1
1947	91,241,250	76,873,793	90.5	4,232,543	5.0	3,787,785	4.5	84,894,071	93.0
1946	91,890,560	60,711,963	91.2	3,327,737	5.0	2,563,024	3.8	66,602,724	72.5
1945	95,505,280	71,939,602	90.3	4,305,318	5.4	3,456,728	4.3	79,701,648	83.5
1944	93,854,420	80,363,953	89.7	5,039,923	5.6	4,237,724	4.7	89,641,600	95.5
1943	90,589,190	78,621,804	88.5	5,625,492	6.3	4,589,216	5.2	88,836,512	98.1
1942	88,886,550	76,501,957	88.9	5,553,424	6.5	3,976,550	4.6	86,031,931	96.8
1941	85,158,150	74,389,619	89.8	5,578,071	6.7	2,871,569	3.5	82,839,259	97.3
1940	81,619,496	61,573,083	91.9	3,708,573	5.6	1,701,030	2.5	66,982,686	82.1
1939	81,828,958	48,409,800	91.7	3,358,916	6.4	1,029,998	1.9	52,798,714	64.5
1938	80,158,538	29,080,016	91.6	2,106,340	6.6	565,634	1.8	31,751,990	39.6
1937	78,148,374	51,824,979	91.5	3,863,918	6.8	948,048	1.7	56,636,945	72.5
1936	78,164,300	48,760,463	91.2	3,873,472	7.2	866,064	1.6	53,499,999	68.4
1935	78,451,930	34,401,280	90.1	3,175,235	8.3	607,190	1.6	38,183,705	48.7
1934	78,128,416	26,354,838	90.3	2,421,840	8.3	405,248	1.4	29,181,924	37.4
1933	78,614,403	22,827,473	87.7	2,720,246	10.5	472,510	1.8	26,020,229	33.1
1932	78,780,913	13,336,210	87.0	1,716,925	11.2	270,766	1.8	15,322,901	19.5
1931	77,257,803	25,210,714	86.8	3,386,289	11.6	461,988	1.6	29,058,961	37.6
1930	72,985,406	39,255,073	86.1	5,639,714	12.4	688,634	1.5	45,583,421	62.5
1929	71,438,518	54,155,235	85.7	7,977,210	12.6	1,073,045	1.7	63,205,490	88.5
1928	68,840,912	49,407,631	85.6	7,414,618	12.8	907,232	1.6	57,729,481	83.9
1927	67,236,117	42,636,835	84.7	6,934,734	13.8	756,136	1.5	50,327,407	74.9
1926	67,750,035	45,575,016	84.2	7,766,716	14.4	747,282	1.4	54,089,014	83.5
1925	69,473,222	42,598,627	83.8	7,530,837	14.8	711,283	1.4	50,840,747	74.2

* Includes very small tonnages of crucible steel.

** Jan. 1, 1950 to June 30, 1950 capacity was 99,392,800 net tons. Beginning July 1, 1950 capacity was revised to 100,563,500 net tons.

† Preliminary

Source: American Iron & Steel Institute

STEEL INGOT PRODUCTION

Openhearth, Bessemer and Electric Furnace Ingots and Steel for Castings, Net Tons; U. S. Only

	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
Jan.	4,719,919	4,856,029	4,302,172	4,531,172	5,115,195	4,288,212	2,852,540	1,685,665	1,157,745	2,276,596	3,279,473	3,474,353	5,398,326
Feb.	4,223,613	4,264,863	4,327,341	4,590,842	4,920,348	4,579,761	2,892,154	1,881,421	1,221,664	2,521,472	3,169,909	3,379,587	5,060,824
March	4,721,111	5,035,081	5,148,330	5,117,384	5,760,878	4,828,571	3,468,206	1,627,030	1,022,675	3,190,040	3,273,910	3,810,436	5,970,247
April	4,033,752	4,626,271	4,685,249	4,888,226	5,826,610	4,684,182	3,141,887	1,429,848	1,531,813	3,346,922	3,017,177	4,494,782	5,901,549
May	3,888,883	4,425,910	4,594,340	4,776,766	6,008,754	4,520,520	2,897,385	1,277,302	2,250,236	3,875,202	3,009,245	4,614,529	5,894,280
June	3,606,900	4,207,512	3,969,129	4,250,736	5,573,076	3,879,960	2,416,078	1,036,102	2,919,687	3,487,612	2,580,771	4,543,888	4,787,719
July	3,471,854	4,095,783	3,637,255	4,320,783	5,513,546	3,316,654	2,143,351	915,738	3,607,288	1,697,879	2,591,240	4,473,940	5,212,832
Aug.	3,850,644	4,492,374	3,971,467	4,744,291	5,614,144	3,473,898	1,949,462	961,153	3,280,279	1,574,849	3,331,770	4,782,442	5,580,883
Sept.	3,927,822	4,409,463	3,710,754	4,709,416	5,146,744	3,223,766	1,754,817	1,125,892	2,599,370	1,446,551	3,227,876	4,744,841	4,907,592
Oct.	4,377,214	4,591,053	3,764,573	5,279,460	5,154,063	3,055,972	1,805,653	1,233,957	2,373,729	1,689,272	3,590,945	5,182,430	3,881,819
Nov.	4,393,068	4,175,502	3,549,711	4,844,460	4,002,365	2,510,820	1,807,315	1,171,710	1,731,930	1,836,068	3,599,687	4,941,014	2,484,783
Dec.	4,469,629	3,906,230	3,604,731	4,562,175	3,299,786	2,246,742	1,477,529	977,389	2,047,780	2,239,126	3,511,702	5,056,843	1,885,279
Total	49,684,409	52,886,071	49,264,052	56,615,711	61,735,509	44,589,058	28,606,379	15,123,207	25,724,196	29,181,329	38,183,705	53,449,085	58,635,939

	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Jan.	1,984,815	3,663,004	5,764,723	6,928,085	7,112,106	7,424,522	7,592,603	7,204,312	3,872,887	7,222,612	7,480,876	6,197,390	7,930,372
Feb.	1,942,795	3,448,120	4,525,797	6,237,900	6,512,535	6,824,604	7,194,009	6,652,765	1,392,682	6,430,401	6,948,017	7,493,942	6,793,245
March	2,293,884	3,929,387	4,389,183	7,131,841	7,392,111	7,674,578	7,876,257	7,705,929	6,508,764	7,316,974	7,618,770	8,401,796	7,487,038
April	2,196,413	3,431,600	4,100,474	6,756,949	7,121,291	7,373,703	7,593,688	7,289,887	5,801,195	7,051,842	6,224,487	7,796,165	8,212,672
May	2,061,169	3,372,636	4,967,782	7,053,238	7,382,578	7,549,691	7,702,576	7,449,667	4,072,620	7,339,014	7,580,642	7,598,990	8,551,887
June	1,868,848	3,606,729	5,657,443	6,800,730	7,015,302	7,039,353	7,234,257	6,840,522	5,625,773	6,977,714	7,265,249	6,504,656	8,131,515
July	2,269,677	3,648,639	5,724,625	6,821,682	7,144,958	7,407,876	7,948,387	6,935,571	6,618,683	6,578,685	7,075,817	5,784,831	8,071,294
Aug.	2,903,805	4,341,726	6,186,383	7,000,957	7,227,655	7,586,484	7,498,913	5,735,317	6,924,522	6,991,152	7,446,834	6,722,771	8,230,317
Sept.	3,029,736	4,881,601	6,056,246	6,819,706	7,057,519	7,514,339	7,235,111	5,982,475	6,555,566	6,797,457	7,424,844	6,597,935	8,200,020
Oct.	3,554,912	6,223,126	6 644,542	7,242,683	7,579,514	7,814,117	7,620,885	5,596,776	6,951,742	7,570,152	7,996,895	928,347	8,718,978
Nov.	4,072,676	6,292,322	6,469,107	6,969,987	7,179,812	7,371,975	7,278,719	6,200,466	6,457,771	7,242,427	7,797,558	4,223,129	8,108,730*
Dec.	3,583,253	5,958,893	6,495,357	7,163,999	7,304,540	7,255,144	7,336,170	6,057,937	5,760,501	7,376,841	7,780,779	7,728,224	8,524,947*
Total	31,751,983	52,797,783	66,981,662	82,927,557	86,029,921	88,836,366	89,641,575	79,701,624	66,602,706	84,894,071	88,640,470	77,978,176	96,954,186*

* Estimate.

Source: American Iron & Steel Institute

STEEL INDUSTRY OPERATING RATES

Openhearth, Bessemer and Electric Furnace Ingots and Steel for Castings—Percent of Capacity; U. S. Only.

Percent of Capacity

	1929	1932	1933	1936	1937	1938		1939	1940	1941	1942	1943	1944		1945	1946	1947	1948	1949	1950†
Jan.	86.56	25.68	17.76	52.46	81.32	29.14	Jan.	52.69	83.40	98.90	94.50	96.80	95.70	Jan.	88.80	49.60	93.20	93.60	100.4	93.9
Feb.	92.21	26.62	20.75	54.61	84.26	31.59	Feb.	54.93	70.00	96.60	95.90	98.50	97.00	Feb.	90.80	19.80	91.90	93.00	101.6	89.1
Mar.	97.48	24.96	15.68	57.54	89.93	33.67	Mar.	56.52	83.50	99.70	98.20	100.00	98.60	Mar.	95.00	83.30	94.40	95.30	102.9	98.7
Apr.	98.32	22.67	24.26	70.09	90.24	33.70	Apr.	50.97	81.20	97.60	97.70	99.30	98.80	Apr.	92.80	77.50	93.90	80.40	98.6	100.4
May	101.66	19.61	34.51	69.68	88.79	30.26	May	48.51	71.80	98.70	98.10	98.40	97.10	May	91.80	92.20	94.70	94.80	93.0	101.3
June	97.38	16.42	46.24	70.85	74.47	23.33	June	53.57	84.50	98.20	96.30	94.80	94.10	June	87.10	74.40	92.90	93.80	82.2	99.4
July	93.51	14.09	55.45	67.71	78.37	33.25	July	52.60	83.00	93.40	94.50	96.20	94.30	July	86.30	84.90	85.10	88.70	71.8	94.7
Aug.	95.00	14.76	50.00	72.22	83.71	42.63	Aug.	62.45	88.50	95.70	95.40	98.30	94.10	Aug.	70.70	86.90	92.20	93.10	82.3	96.3
Sept.	90.14	17.89	41.29	74.16	76.19	46.03	Sept.	72.68	90.60	96.40	96.40	100.70	94.00	Sept.	76.30	86.90	90.80	96.10	83.6	99.3
Oct.	87.22	18.94	38.40	76.26	53.23	52.19	Oct.	89.52	96.10	99.00	100.00	101.20	95.60	Oct.	69.00	89.00	97.70	99.90	11.4	102.0
Nov.	69.94	18.57	27.43	77.05	38.18	61.74	Nov.	93.46	98.60	98.30	97.80	98.60	94.30	Nov.	78.90	85.40	96.50	100.50	53.4	97.8
Dec.	55.96	15.04	31.46	76.53	25.34	52.72	Dec.	88.91	94.10	98.10	98.60	94.20	92.60	Dec.	74.80	73.90	95.40	97.7	94.8	100.0
Average	88.76	19.67	33.52	68.45	72.33	39.60	Average	64.53	82.10	97.40	96.80	98.10	95.50	Average	83.50	72.50	93.00	94.1	81.1	97.0

* Estimated. † Preliminary.

Source: American Iron & Steel Institute

ALLOY STEEL INGOT PRODUCTION

Other Than Stainless, by Grade, Net Tons

	1950 10 Months	1949	1948	1947	1946	1945	1944
Nickel	129,293	106,062	406,401	322,058	200,317	206,288	318,396
Molybdenum	503,962	475,691	653,823	592,462	426,521	400,027	403,202
Manganese	261,352	264,898	244,678	213,955	188,405	510,010	689,894
Manganese-Molybdenum	173,458	204,883	*	*	*	*	*
Chromium	942,704	788,917	1,001,738	880,101	655,885	616,900	880,196
Chromium-Vanadium	32,748	29,314	*	*	*	*	*
Nickel-Chromium	161,930	156,080	686,818	630,705	456,456	503,604	861,967
Chromium-Molybdenum	441,220	313,196	489,931	347,867	394,571	343,147	1,117,780
Nickel-Molybdenum	412,638	309,971	*	*	461,689	426,594	433,262
Nickel-Chromium-Molybdenum—NE Steels	979,791	797,941	1,184,200	878,353	680,804	2,031,302	2,301,671
Nickel-Chromium-Molybdenum—All Other	*	*	*	*	*	1,031,159	1,326,671
Silico-Manganese	113,404	177,831	233,167	221,386	204,661	1,940,185	1,717,184
All Other	1,692,950	1,738,718	2,877,964	2,711,891	1,793,347	*	*
Total	5,845,450	5,342,271	7,760,820	6,798,778	5,432,656	8,008,213	10,050,013
Percentage of alloy ingots to total ingot output	7.3	6.4	8.8	8.0	8.2	10.1	11.3

* Included in "All Other."

Source: American Iron & Steel Institute

STAINLESS STEEL

Ingot Production, Net Tons

Type	First 6 mos. 1950	1949	1948	1947
301	33,535	34,144	61,585	24,485
302	96,813	83,666	145,426	124,542
302B	878	515	1,823	629
303	10,362	9,189	14,633	9,171
304	89,036	88,996	100,986	115,367
308	1,273	1,972	2,947	2,884
309	1,679	2,647	4,902	4,137
310	3,453	4,826	5,863	3,849
316	15,840	19,119	28,822	29,630
321	3,616	5,306	7,528	6,949
347	17,470	24,052	33,348	22,968
All Other	6,044	10,548	9,286	8,748
Total	259,999	274,682	416,367	353,037
403	2,890	5,826	6,423	5,921
405	1,670	2,156	4,126	2,259
406	1,091	1,621	2,580	1,842
410	10,567	15,961	25,614	19,566
414	1,553	2,165	5,562	2,090
416	11,350	9,285	16,264	9,905
420	2,628	3,315	4,882	4,818
430	99,764	122,286	122,437	105,763
430F	786	921	1,526	1,096
431	727	1,157	1,129	1,476
440A	918	1,334	1,433	800
440B	202	592	218	125
440C	786	873	1,220	1,223
442	229	298	318	439
443	5	4	33	13
446	1,481	2,321	2,573	1,753
All Other	3,047	2,528	4,692	7,783
Total	139,676	172,343	200,991	166,896
Total all types	399,675	447,025	617,378	519,933
Ratio stainless to total ingot output	1:118	1:174	1:144	1:163

Source: American Iron and Steel Institute

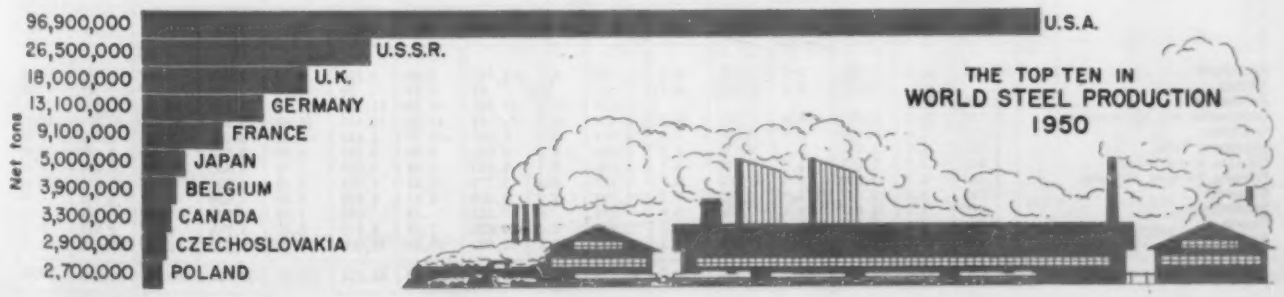
WORLD STEEL PRODUCTION

Ingots and Steel for Castings, Thousands of Net Tons

Compiled by THE IRON AGE from the United Nations Bulletin of Statistics, Chambre Syndicate de la Siderurgie Francaise, British Iron and Steel Federation and the American Iron and Steel Institute.

	1950*	1949[1]	1948[1]	1947	1946	1945	1944	1943	1942	1941	1940	1939
Australia	1,519	1,309	1,425	1,373	1,164	1,505	1,703	1,822	1,901	1,838	1,439	1,307
Austria	1,017	920	713	394	207	189	....	....	....	....	....	....
Belgium	3,863	4,242	4,318	3,181	2,508	805	670	1,834	1,518	1,782	2,086	3,429
Brazil	798	671	545	426	379	227	243	205	176	170	156	125
Canada	3,270	3,186	3,159	2,902	2,293	2,803	2,930	2,872	2,986	2,823	2,174	1,509
Czechoslovakia	2,850	2,756	2,910*	2,520	1,843	1,045	2,778	2,831	2,819	2,589	2,606	2,526
France	9,108	10,086	7,984	6,338	4,859	1,822	3,408	5,551	4,947	4,781	4,864	6,763
Germany	13,101[2]	10,090[2]	6,127[2]	4,739[2]	3,604[2]	5,500	28,481	33,706	31,684	28,904	23,732	26,152
Hungary	875	882	794*	658	389	142	766	856	885	881	827	808
India	1,525	1,517	1,237	1,346	1,373	1,426	1,465	1,518	1,482	1,531	1,399	1,135
Italy	2,503	2,265	2,342	1,874	1,289	436	1,138	1,908	2,130	2,275	2,487	2,513
Japan	4,970	3,362	1,916	1,041	606	1,177	7,032	9,676	8,790	8,349	8,288	8,124
Luxembourg	2,580	2,507	2,705	1,886	1,426	291	1,389	2,368	1,720	1,376	1,138	1,931
Mexico	390	380	268	353	277	201	199	194	104	104	104	085
Poland	2,525	2,539	2,116*	1,731	1,344	546	755	870	....	....	1,600	1,790
Saar	1,925	1,936	1,922	780	317	....	....	....	....	....	....	2,235
South Africa	849	699	780	680	568	594	541	462	370	370	396	343
Spain	904	793	604	581	656	617	546	721	663	633	766	644
Sweden	1,071	1,511	1,270	1,311	1,335	1,327	1,320	1,338	1,354	1,275	1,280	1,270
United Kingdom	18,076	17,256	16,662	14,246	14,220	13,243	13,599	14,595	14,495	13,790	14,527	14,808
U.S.S.R.	26,500	23,500	18,700	14,700*	13,400*	12,300*	13,300	12,200	10,900	16,600	20,130	20,719
United States	96,954	77,978	88,640	84,894	66,603	79,702	89,642	88,837	86,032	82,839	66,983	52,799
Totals	194,184	173,386	167,107	147,156*	120,345*	125,898*	171,905	184,461	174,676	169,627	156,982	150,780

* Estimated. [1]Revised. [2] British, French and United States Zones.



SHIPMENTS AND PRODUCTION FOR SALE OF STEEL PRODUCTS

By Companies Who Made More Than 95 Pct of Total Rolled Steel Produced in the U. S.

Steel Products	1950—9 Months		1949		1948		1947		1946		1945		1940	
	Shipments (N.T.)	Pct of Total	Shipments (N.T.)	Pct of Total	Shipments (N.T.)	Pct of Total	Shipments (N.T.)	Pct of Total	Shipments (N.T.)	Pct of Total	Shipments (N.T.)	Pct of Total	Production for Sale (N.T.)	Pct of Total
Ingots, blooms, billets, tube rounds, sheet and tin bars, etc.	2,174,838	4.1	2,261,285	3.9	3,150,754	4.8	2,966,748	4.7	1,949,624	4.0	4,724,588	8.3	4,532,745	9.9
Structural shapes (heavy)	3,068,992	5.8	3,669,503	6.3	4,255,355	6.5	4,436,129	7.0	3,474,284	7.1	3,545,673	6.3	3,149,036	6.9
Steel piling	243,778	0.5	301,824	0.5	299,537	0.5	324,224	0.5	205,313	0.4	217,336	0.4	215,234	0.5
Plates (sheared and universal)	3,924,394	7.4	5,759,065	9.9	7,000,199	10.6	6,345,216	10.1	4,152,181	8.5	6,508,130	11.5	4,171,158	9.1
Skelp	88,834	0.2	118,533	0.2	75,252	0.1	160,989	0.3	227,033	0.5	378,985	0.7	527,574	1.1
Rails, Standard (over 60 lbs.)	1,316,933	2.5	1,772,734	3.0	1,976,520	3.0	2,207,148	3.5	1,790,311	3.7	2,224,148	3.9	1,487,113	3.2
All other	86,831	0.2	117,154	0.2	214,880	0.3	211,900	0.3	144,999	0.3	170,055	0.3	182,622	0.4
Joint bars and tie plates	410,785	0.8	491,896	0.8	626,573	1.0	678,702	1.1	624,299	1.3	779,057	1.4	481,271	1.0
Track spikes	105,157	0.2	95,345	0.2	145,830	0.2	163,746	0.3	146,194	0.3	165,038	0.3	107,197	0.2
Hot Rolled Bars, Carbon	5,866,241	11.1	6,416,102	11.0	6,198,444	9.4	6,242,416	9.9	5,006,859	10.3	5,590,154	9.9	4,485,549	9.7
Reinf., New billet	1,210,461	2.3	1,572,588	2.7	1,329,945	2.0	1,277,075	2.0	1,048,483	2.1	750,442	1.3	1,299,455	2.8
Rerolled					212,021	0.3	175,833	0.3	141,346	0.3	85,006	0.1	142,480	0.3
Alloy	†	....	†	....	1,927,309	2.9	1,741,432	2.8	1,390,278	2.8	1,741,075	3.1	962,450	2.1
Total	7,076,702	13.4	7,988,690	13.7	9,665,719	14.6	9,436,786	15.0	7,586,966	15.5	8,166,677	14.4	6,869,934	14.9
Cold Finished Bars, Carbon	....	....	....	2.1	1,349,719	2.0	1,426,701	2.3	1,316,579	2.7	1,614,136	2.8	724,504	1.6
Alloy	....	....	....	....	244,248	0.4	218,802	0.3	196,237	0.4	326,173	0.6	99,589	0.2
Total	1,186,658	2.3	1,213,052	2.1	1,593,967	2.4	1,645,503	2.6	1,512,816	3.1	1,940,309	3.4	824,093	1.8
Tool steel bars	60,407	0.1	57,395	0.1	88,376	0.1	87,279	0.1	96,020	0.2	122,149	0.2	74,176	0.2
Pipes and Tubes, Buttweld					2,045,361	3.1	1,706,415	2.7	1,276,289	2.6	1,517,927	2.7	1,157,144	2.5
Lapweld					339,633	0.5	389,762	0.6	305,516	0.6	503,951	0.9	380,188	0.8
Electricweld	6,593,055	12.5	6,317,557	10.9	1,572,139	2.4	1,122,350	1.8	674,459	1.4	857,478	1.5	288,424	0.6
Seamless					2,924,416	4.4	2,082,686	3.3	1,871,540	3.8	2,235,294	4.0	1,759,567	3.8
Conduit					....	....	155,335	0.2	98,521	0.2	88,112	0.1	82,042	0.2
Mech., Press. Tubes	....	....	617,663	1.1	....	....	661,336	1.1	429,180	0.9	689,130	1.2	313,877	0.7
Wire rods	603,984	1.2	570,397	1.0	610,348	0.9	667,282	1.1	679,998	1.4	862,393	1.5	1,041,557	2.3
Wire, Drawn	2,077,512	3.9	2,138,878	3.7	2,673,276	4.1	2,590,963	4.1	1,933,124	4.0	1,942,188	3.4	1,540,357	3.4
Nails and staples	652,734	1.2	731,356	1.3	859,540	1.3	799,436	1.3	636,632	1.3	602,558	1.1	641,453	1.4
Barbed and twisted	175,049	0.3	215,047	0.4	254,629	0.4	256,991	0.4	207,610	0.4	234,209	0.4	213,825	0.5
Woven wire fence	363,993	0.7	358,162	0.6	399,457	0.6	407,295	0.6	383,230	0.8	373,920	0.7	230,278	0.5
Bale ties	59,464	0.1	42,828	0.1	113,892	0.2	119,917	0.2	99,993	0.2	82,609	0.1	67,610	0.1
All other wire products	....	....	....	....	....	....	....	....	....	....	....	....	5,302	0.0
Fence posts	....	....	....	....	....	....	....	....	....	....	....	....	54,434	0.1
Black Plate, Ordinary	391,284	0.7	452,014	0.8	821,398	1.3	801,745	1.3	781,167	1.6	628,634	1.1	282,551	0.6
Chemically treated					17,268	....	19,252	....	125,170	0.3	114,949	0.2		
Tin and Terne Plate, Hot dipped	1,438,246	2.7	1,699,355	2.9	2,167,912	3.3	2,093,149	3.3	1,924,657	3.9	2,046,153	3.6	2,689,856	5.9
Electrolytic	2,149,674	4.1	1,993,468	3.4	1,784,288	2.7	1,617,659	2.6	909,173	1.9	861,634	1.5		
Sheets, Hot rolled	5,750,499	10.9	6,192,610	10.7	7,786,056	11.8	7,891,798	12.5	5,956,633	12.2	6,327,995	11.2	6,197,810	13.5
Cold rolled	6,796,653	12.9	6,886,946	11.8	6,867,775	10.4	5,504,578	8.7	4,075,554	8.4	2,891,180	5.1	2,436,539	5.3
Galvanized	1,732,640	3.3	1,755,067	3.0	1,643,337	2.5	1,609,881	2.5	1,462,053	3.0	1,693,796	3.0	1,551,374	3.4
Strip, Hot rolled	1,693,627	3.2	1,674,818	2.9	1,662,787	2.5	1,740,085	2.7	1,363,812	2.8	1,369,094	2.4	1,349,188	2.9
Cold rolled	1,333,783	2.5	1,465,297	2.5	1,783,383	2.7	1,613,005	2.6	1,282,146	2.6	1,275,670	2.3	790,346	1.7
Wheels (car, rolled steel)	182,709	0.4	285,733	0.5	337,376	0.5	356,873	0.6	252,308	0.5	292,637	0.5	191,870	0.4
Axles	80,972	0.2	159,628	0.3	215,905	0.3	185,019	0.3	130,461	0.3	146,867	0.3	106,088	0.2
All other	883,470**	1.7	693,113*	1.2	....	....	....	....	6,266	0.0	41,719	0.1	10,138	0.0
Total Steel Products	....	....	58,104,010	100.0	65,973,138	100.0	63,057,150	100.0	48,775,532	100.0	56,602,322	100.0	45,965,971	100.0

† Included with carbon. * Includes long ternes, 151,118 tons; enameling sheets, 162,815 tons; and electrical sheets, 519,821 tons.
** Includes other coated sheets, 172,610 tons; enameling sheets, 191,039 tons; and electrical sheets and strip, 519,821 tons.

STEEL DISTRIBUTION BY CONSUMING INDUSTRIES

In Thousands of Net Tons

	1939		Yearly Average 1941-44 Inc.		1945		1946		1947		1948		1949*		1950†	
	Tons	Pct	Tons	Pct	Tons	Pct	Tons	Pct	Tons	Pct	Tons	Pct	Tons	Pct	Tons	Pct
Agriculture	1,421	3.6	1,565	2.4	2,426	4.3	2,100	4.3	2,422	3.84	2,743	4.16	2,644	4.55	3,047	4.25
Aircraft	....	....	5,557	8.8	5,521	9.7	32	.06	44	0.07	39	0.06	44	.08	54	.08
Automotive	5,906	15.1					7,379	15.1	10,292	16.32	11,330	17.17	11,880	20.45	15,518	21.63
Construction and Maintenance	6,100	15.6	8,379	13.3	8,353	14.7	8,130	16.7	10,039	15.92	10,157	15.40	10,020	17.25	12,288	17.13
Containers	2,978	7.6	4,216	6.7	4,333	7.6	4,749	9.7	5,596	8.87	5,844	8.85	5,026	8.65	6,472	9.02
Machinery, Tools	1,460	3.7	3,191	5.1	4,739	8.3	4,438	9.1	5,648	8.96	5,337	8.09	4,274	7.36	5,695	7.94
Oil, Gas, Water, Mining	1,842	4.7	2,221	3.5	2,670	4.7	2,480	5.1	3,833	6.08	5,080	7.70	5,455	9.39	6,689	9.32
Pressing, Forming, Stamping	1,842	4.7	2,809	4.5	3,800	6.7	3,127	6.4	3,770	5.98	4,256	6.45	3,124	5.38	4,490	6.26
Railroads	3,250	8.3	5,422	8.6	5,268	9.3	4,764	9.8	5,999	9.51	5,866	8.89	4,038	6.95	5,120	7.14
Shipbuilding	518	1.3	9,657	15.3	3,374	5.9	320	.64	373	.59	716	1.09	722	1.24	381	.53
Exports	2,817	7.2	7,701	12.2	3,793	6.7	3,378	6.9	4,639	7.36	3,578	5.42	3,798	6.54	2,417	3.37
All Others	10,933	28.2	12,212	19.4	12,669	22.2	7,879	16.2	10,402	16.50	11,029	16.72	7,077	12.18	9,575	13.36
Total	39,067	100.0	63,490	99.8	56,946	100.0	48,776	100.00	63,057	100.00	65,973	100.00	58,104	100.00	71,746	100.00

* Revised. † Preliminary.

Data by American Iron & Steel Institute; Compilation, THE IRON AGE

STEEL USED BY THE METALWORKING INDUSTRY

1948 Consumption of All Grades by the Metalworking Industry, Net Tons

STATE	Hot-Rolled Sheets and Strip Including Galvanized	Cold-Rolled Sheets and Strip	Tin and Terne Plate Blackplate	Plates	Structural Shapes	Hot-Rolled Bars	Cold-Finished Bars	Pipe and Tubes	Wire and Wire Rods	Unclassified	Total	Pct. of Total
Alabama	54,380	26,304	1,182	76,563	81,427	43,531	5,333	17,012	15,506	21,475	342,733	0.75
Arizona	3,814	1,863	51	4,796	13,347	4,155	276	1,240	549	2,115	32,206	0.07
Arkansas	3,369	2,716	2,129	2,373	5,215	2,147	356	764	849	1,273	21,191	0.05
California	364,900	223,477	454,758	288,341	255,841	178,358	42,505	88,203	94,214	106,951	2,095,548	4.56
Colorado	14,905	6,737	2,649	19,693	22,108	16,745	2,739	5,179	2,530	8,102	101,385	0.22
Connecticut	251,832	266,159	16,781	79,467	25,067	190,101	81,203	65,817	165,607	82,660	1,194,694	2.60
Delaware	12,291	4,644	263	44,745	14,840	5,674	1,227	3,322	3,786	6,267	99,059	0.22
District of Columbia	2,488	1,532	117	2,822	6,230	5,839	1,496	834	318	1,498	23,174	0.05
Florida	18,000	8,207	53,422	13,681	14,129	6,705	1,018	2,010	878	3,811	121,861	0.26
Georgia	47,854	21,403	9,406	24,820	19,677	16,913	4,228	7,901	10,825	7,476	170,103	0.37
Idaho	802	584	21	756	1,045	1,885	379	318	553	419	6,762	0.02
Illinois	1,090,245	770,380	908,313	578,384	379,790	1,038,269	271,257	177,755	376,463	317,029	5,905,885	12.85
Indiana	708,255	477,368	70,606	216,193	133,013	488,969	127,593	82,378	112,441	119,694	2,516,510	5.48
Iowa	129,149	50,894	3,889	61,812	55,675	119,554	27,456	22,094	23,623	31,048	525,192	1.14
Kansas	25,028	13,537	619	32,061	30,271	24,188	4,425	9,494	3,377	8,501	151,501	0.33
Kentucky	77,224	56,836	46,078	32,214	26,394	44,733	9,474	15,588	10,083	29,398	348,022	0.76
Louisiana	32,790	8,550	50,083	24,939	19,039	8,657	1,382	7,474	1,847	4,082	158,843	0.35
Maine	4,567	3,497	32,886	7,694	6,398	7,312	3,235	2,495	4,472	1,412	73,958	0.16
Maryland	150,304	92,957	264,050	64,232	25,347	28,020	9,386	10,941	23,458	21,390	688,075	1.50
Massachusetts	287,051	201,151	54,618	144,513	82,272	205,643	70,403	53,247	134,943	81,390	1,315,231	2.86
Michigan	1,987,594	2,397,759	58,930	410,075	154,624	1,149,191	311,643	148,880	276,777	197,848	7,073,321	15.39
Minnesota	82,289	55,060	46,884	60,600	56,456	71,476	20,402	20,089	17,970	22,177	453,403	0.99
Mississippi	2,521	882	82	11,154	4,388	2,910	676	1,173	2,039	1,957	27,782	0.06
Missouri	198,432	135,880	76,154	110,180	61,719	89,947	25,144	39,497	51,286	35,135	823,374	1.79
Montana	1,153	135	8	2,826	1,673	1,081	110	1,440	188	156	8,770	0.02
Nebraska	29,828	11,367	856	16,043	25,840	18,722	3,707	4,515	2,667	6,384	119,931	0.26
Nevada	104	7	1	501	159	110	17	164	10	41	1,114	.....
New Hampshire	8,749	5,088	290	9,644	4,571	7,606	2,878	1,801	11,683	1,850	54,138	0.12
New Jersey	325,447	237,507	312,480	176,543	110,974	188,917	56,213	82,529	120,490	73,609	1,684,699	3.66
New Mexico	312	91	5	160	157	86	16	31	21	43	932	.....
New York	681,742	501,092	352,484	440,221	236,621	441,253	143,345	115,378	142,992	177,228	3,232,356	7.04
North Carolina	11,918	7,301	314	8,747	15,185	11,237	2,686	2,875	4,331	3,853	68,447	0.15
North Dakota	802	290	10	1,486	4,495	1,374	45	187	143	771	9,603	0.02
Ohio	1,383,791	1,108,124	213,011	571,659	331,836	838,364	281,767	225,538	374,599	305,601	5,634,335	12.26
Oklahoma	19,775	5,941	380	51,975	49,116	23,717	2,802	15,448	2,751	9,791	181,676	0.39
Oregon	14,172	9,990	31,029	11,756	12,277	10,510	2,462	3,780	4,337	4,902	105,215	0.23
Pennsylvania	997,057	672,793	352,875	1,065,941	584,863	850,001	119,783	218,713	269,582	367,066	5,498,654	11.96
Rhode Island	23,839	26,100	21,266	9,868	6,064	43,610	16,395	6,151	37,178	4,112	196,603	0.43
South Carolina	2,235	1,387	59	7,577	3,850	1,378	559	789	1,010	1,203	20,027	0.04
South Dakota	2,266	870	31	929	998	1,421	350	239	155	400	7,659	0.02
Tennessee	63,538	55,286	10,347	55,590	37,739	26,879	6,244	20,317	10,567	17,002	303,509	0.66
Texas	99,257	34,005	133,994	108,383	111,537	97,149	10,831	33,927	14,835	31,556	675,474	1.47
Utah	3,969	1,247	8,711	9,222	9,559	4,586	508	3,366	1,024	1,674	43,866	0.09
Vermont	8,447	6,317	219	3,052	2,567	6,403	4,361	1,137	1,868	1,383	35,654	0.08
Virginia	29,859	15,184	11,895	88,511	61,022	25,100	2,022	8,579	5,680	12,822	260,674	0.57
Washington	29,245	17,638	52,633	36,674	21,633	26,834	4,439	7,633	4,393	8,590	209,712	0.46
West Virginia	46,859	42,293	71,146	33,745	23,049	19,641	3,584	9,797	5,201	10,027	265,342	0.58
Wisconsin	803,297	370,022	51,508	863,866	155,846	386,288	100,772	83,697	92,330	153,933	3,061,557	6.66
Wyoming	339	364	14	138	94	430	110	87	86	122	1,784	.....
National Total	10,118,074	7,960,798	3,779,519	5,886,987	3,308,155	6,757,627	1,799,220	1,631,848	2,442,105	2,279,215	45,951,546	100.00

Source: The IRON AGE Market Research Dept.

STAINLESS STEEL SHIPMENTS

Finished and Semifinished Products, Net Tons

PRODUCTS	1950—First 9 Months		1949		1948		1947	
	Shipments	Pct of Total	Shipments	Pct of Total	Shipments	Pct of Total	Shipments	Pct of Total
Ingots, Blooms, Billets, Slabs, Sheet Bars, Tube Rounds, etc.	19,460	6.1	16,292	6.1	19,916	6.1	15,720	5.3
Plates	8,068	2.5	8,670	3.2	12,071	3.7	11,273	3.8
Sheets—Hot Rolled	21,415	6.7	15,515	5.8	19,510	6.0	32,358	11.0
Sheets—Cold Rolled	78,322	24.4	54,780	20.5	77,841	24.0	67,480	22.8
Strip—Hot Rolled	5,767	1.8	5,741	2.2	3,883	1.2	1,034	0.4
Strip—Cold Rolled	125,112	39.0	105,072	39.3	113,414	34.9	101,288	34.3
Bars—Hot Rolled	18,904	5.9	19,652	7.3	26,419	8.1	23,176	8.5
Bars—Cold Finished	20,585	6.4	17,928	6.7	26,784	8.2	22,762	7.7
Pipe and Tubes	7,965	2.5	7,338	2.7	9,699	3.0	8,296	2.8
Wire Rods	810	0.3	381	0.1	136	0.1	708	0.2
Wire Drawn	14,383	4.5	15,696	5.9	14,031	4.3	8,891	3.0
All Other (Incl. Structural Shapes)	219	0.1	634	0.2	1,272	0.4	580	0.2
Total Stainless Steel Products	321,010	100.0	267,677	100.0	324,966	100.0	295,516	100.0
All Products—4 Pct to 6 Pct Chromium (Types 501 and 502)	.....	.....	8,528	.....	11,965	.....	12,044	.....

Source: American Iron & Steel Institute

1 METAL FACTS SECTION

Steel Shipments: Alloy and Alloy and High Speed Bars. Canadian Steel: Capacity, Production of Ingots and Finished Steel.

HIGH SPEED AND TOOL STEEL BARS

Shipments, Net Tons, Excluding Drill Steel

Class A High Speed Steel

Grade	C (Min.)	Cr (Max.)	W (Max.)	Mo (Max.)	V	Co	1950 10 Mo.	1949	1948	1947	1946
I	0.60	4.5	6.0	5.5	1.9 Max.	0.0	4,723	2,540	5,622	4,006	4,798
I-b	0.90	4.5	6.5	6.5	2.25 Min.	0.0	133	104	51	85	37
I-c	0.60	4.5	6.0	5.5	2.2 Max.	3.5 Min.	438	208	316	135	242
II	0.60	4.5	1.8	8.75	1.3 Max.	0.0	923	560	1,499	1,009	1,721
II-c	0.60	4.5	1.8	8.75	2.2 Max.	3.5 Min.	25	26	35	26	30
III	0.60	4.5	...	8.75	2.2 Max.	0.0	606	151	665	289	400
III-c	0.60	4.5	...	8.75	2.2 Max.	3.5 Min.	51	29	83	45	26
Total							6,899	3,618	8,305	5,563	7,254

Class B High Speed Steel

	C (Min.)	Cr (Max.)	W (Max.)	Mo	V	Co					
IV	0.55	4.5	19.0	0.0	1.2 Max.	0.0	5,180	4,041	7,949	9,804	8,574
IV-b	0.55	4.5	19.0	1.1 Max.	2.0 Min.	0.0	447	391	436	500	307
IV-c	0.55	4.5	22.0	1.1 Max.	2.2 Max.	3.5 Min.	819	884	1,071	1,054	778
Total							6,446	5,316	9,456	11,358	9,659

Other Tool Steels

V	All hot-work steel	6,728	5,140	7,127	6,088	5,942
VI	High chromium (4% Cr. minimum) die steels	5,683	4,707	6,707	5,897	5,444
VII	All other alloy tool steels	32,683	26,251	37,988	36,605	40,043
VIII	Carbon tool steels excluding hollow drill steel	14,497	12,968	20,251	23,438	28,049
Total		59,591	49,066	72,073	72,028	79,478
Grand Total		72,936	58,000	89,834	88,949	96,391

Source: American Iron and Steel Institute

ALLOY STEEL SHIPMENTS

Except Stainless Steel and Types 501 and 502, Net Tons*

Products	1950—First 9 Months: Full Alloy Shipments	1950—First 9 Months: Hi-Str. Low Alloy Shipments	1950—First 9 Months: Pct of Total	1949: Shipments	1949: Pct of Total	1948: Shipments	1948: Pct of Total	1947: Shipments	1947: Pct of Total
Ingots, blooms, billets, slabs, tube rounds, etc.	399,178	82	11.9	374,150	10.9	489,536	10.5	379,551	9.1
Structural shapes (heavy)	2,280	24,887	0.8	40,506	1.2	64,621	1.4	67,578	1.6
Galvanized Sheets	18,118	2,228	0.6						
Plates (sheared and universal)	35,164	90,549	3.7	153,220	4.5	225,450	4.8	166,106	4.0
Rails—standard (over 60 lbs)	284	.....	0.0	120	0.0	76	0.0	157	0.0
Rails—all other	53	.....	0.0	55	0.0	33	0.0	75	0.0
Bars—hot rolled	1,422,501	6,849	42.6	1,459,744	42.6	1,900,414	40.6	1,716,187	41.3
Bars—cold finished	181,491	.....	5.4	173,420	5.1	217,833	4.7	196,200	4.7
Bars—tool steel	48,393	.....	1.4	44,508	1.3	68,210	1.4	62,780	1.5
Pipe and tubes—oil country	165,165	.....	4.9	.....	.....	.....	.....	.....	.....
Pipe and tubes—mechanical	150,750	.....	4.5	353,248	10.3	415,758	8.9	362,420	8.7
Pipes and tubes—pressure	17,960	.....	0.5	.....	.....	.....	.....	.....	.....
Electrical sheets and strip	444,640	.....	13.2	.....	.....	.....	.....	.....	.....
Wire rods	10,798	.....	0.3	8,081	0.2	282	0.0	1,311	0.0
Wire drawn	28,424	.....	0.9	28,286	0.8	34,485	0.7	28,436	0.7
Sheets—hot rolled	20,158	166,551	5.6	446,263	13.0	712,393	15.2	745,370	17.9
Sheets—cold rolled	5,169	73,251	2.3	223,210	6.5	349,756	7.5	251,474	6.1
Strip—hot rolled	13,777	17,685	0.9	54,354	1.6	90,364	1.9	67,972	1.7
Strip—cold rolled	7,882	2,803	0.3	66,840	1.9	103,405	2.2	103,719	2.5
Wheels (car, rolled steel)	65	.....	0.0	93	0.0	23	0.0	53	0.0
Axles	463	.....	0.0	550	0.0	942	0.0	558	0.0
All other	280	286	0.0	3,180	0.1	7,685	0.2	6,061	0.2
Total	2,972,975	387,151	100.0	3,427,928	100.0	4,681,066	100.0	4,176,008	100.0

*1947-1949 data includes high-strength low-alloy steels.

Source: American Iron & Steel Institute

For steel used in automobile, appliances, etc., see Section 4. Steelmaking raw materials are in Section 3.



CANADIAN STEEL OUTPUT

Ingots and Steel for Castings, Net Tons

	Ingots	Castings	Total Steel Ingots and Castings
1923	940,475	33,213	973,688
1924	700,196	28,576	728,772
1925	836,016	21,100	856,116
1926	877,917	37,338	915,255
1927	972,079	44,475	1,016,554
1928	1,332,801	50,058	1,382,859
1929	1,466,688	78,562	1,545,250
1930	1,072,321	60,830	1,133,151
1931	744,605	41,501	786,106
1932	349,843	25,664	375,507
1933	441,346	17,830	459,176
1934	827,041	23,116	850,157
1935	1,016,814	35,123	1,051,937
1936	1,211,334	38,337	1,249,671
1937	1,496,575	74,652	1,571,137
1938	1,238,078	56,636	1,294,714
1939	1,266,056	60,997	1,327,053
1940	2,177,973	77,899	2,255,872
1941	2,578,063	123,250	2,701,313
1942	2,942,921	178,440	3,121,361
1943	2,848,235	148,743	2,996,978
1944	2,878,407	146,003	3,024,410
1945	2,747,206	134,117	2,881,323
1946	2,253,437	81,194	2,334,631
1947	2,854,532	90,634	2,945,166
1948	3,089,027	112,629	3,201,656
1949	3,089,368	97,562	3,186,930
1950: Jan.	283,894	6,055	289,949
Feb.	251,890	6,233	258,123
Mar.	287,719	6,584	294,303
Apr.	272,936	6,384	279,320
May	283,810	7,096	290,906
June	269,816	8,607	278,423
July	259,025	5,165	264,190
Aug.	275,009	6,213	281,312
Sept.	268,997	7,950	274,947
Year 1950*	3,200,000	70,230	3,270,230

* Estimated.

CANADIAN STEEL CAPACITY

Ingot Capacity and Operating Rates

	Steel Ingot Capacity	Steel Ingot Output	Percent of Capacity
1936	2,346,000	1,211,334	51.6
1937	2,346,000	1,496,575	63.7
1938	2,346,000	1,238,078	52.7
1939	2,346,000	1,266,056	53.9
1940	2,667,000	2,177,973	81.6
1941	2,964,000	2,578,063	86.9
1942	3,172,000	2,942,921	92.7
1943	3,257,500	2,848,235	87.4
1944	3,338,200	2,878,407	86.2
1945	3,358,600	2,787,206	81.7
1946	3,358,600	2,253,437	67.0
1947	3,245,000	2,854,532	87.9
1948	3,490,000	3,089,027	88.5
1949	3,598,000	3,089,368	84.1
1950	3,672,500	3,200,000*	87.1

* December estimated.

CANADIAN FINISHED STEEL

Production and Shipments, Net Tons

	Production Carbon Steel Shapes	Shipments* Carbon Steel Shapes	Production Alloy Steel Shapes	Shipments* Alloy Steel Shapes
1946	2,300,088	2,298,986	75,442	73,180
1947	3,042,727	2,343,688	117,684	111,775
1948	3,421,669	2,475,577	153,595	147,323
1949	3,556,507	2,604,884	109,735	103,307
1950:				
Jan.	310,925	203,045	9,204	8,386
Feb.	311,565	191,302	8,648	7,045
Mar.	347,760	345,292	14,001	13,664
Apr.	314,684	207,095	10,564	9,628
May	365,248	237,064	15,810	11,725
June	360,389	237,134	9,394	11,188
July	335,797	212,675	10,243	9,117
Aug.	354,031	211,669	10,094	10,326
Total 8 Mo.	2,700,599	1,733,553	87,958	81,004

* Excluding shipments to members of the industry for further conversion. Source of above three tables: Dominion Bureau of Statistics.

FABRICATED STRUCTURAL STEEL

Estimated Bookings, Net Tons

Month	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
Jan.	227,760	224,940	187,380	208,800	195,000	207,900	256,025	238,800	158,000	48,400	99,239	91,594	64,306	120,384
Feb.	243,360	228,200	194,320	208,800	240,000	265,650	250,835	267,600	158,800	62,000	67,953	75,294	75,841	140,943
March	290,160	218,420	225,560	237,600	232,500	257,950	334,565	236,800	178,800	64,400	92,409	105,537	102,325	106,826
April	246,480	208,640	253,310	252,000	262,500	234,850	313,775	222,800	284,800	64,800	59,096	121,552	95,330	112,195
May	180,960	192,340	229,020	266,400	232,500	308,000	321,475	279,200	152,400	90,800	54,726	78,606	60,448	147,281
June	165,360	202,120	284,540	262,800	225,000	296,450	324,170	253,600	172,400	86,800	106,476	122,603	120,890	132,387
July	162,240	215,160	270,660	248,400	341,250	296,450	329,175	270,000	159,600	69,200	72,531	75,257	65,957	199,057
Aug.	184,080	189,060	263,720	284,400	270,000	354,200	340,725	252,000	124,000	78,800	101,832	95,489	102,859	110,667
Sept.	168,480	208,640	270,660	212,400	262,500	319,550	297,990	155,600	194,400	111,200	76,250	66,586	90,161	118,158
Oct.	159,120	208,640	298,420	230,400	288,750	257,950	319,550	209,200	109,200	74,400	67,119	64,723	102,708	130,989
Nov.	171,600	260,800	239,430	219,600	236,250	242,550	212,135	151,200	90,800	51,600	75,190	89,340	91,893	121,607
Dec.	249,600	247,760	249,840	255,600	262,500	246,400	297,605	152,800	97,600	145,600	103,931	66,196	98,235	166,842
Total	2,449,200	2,604,740	2,966,850	2,887,200	3,048,750	3,267,900	3,597,825	2,669,800	1,880,800	948,000	975,742	1,082,779	1,068,603	1,609,016
Mo. av.	204,100	217,062	247,238	240,600	254,063	273,992	299,819	224,133	156,733	79,000	81,312	87,732	89,050	134,085

Month	1937	1938	1939	1940	1941	1942	1943†	1944†	1945†	1946	1947	1948	1949	1950
Jan.	153,806	80,320	101,712	81,686	281,235	183,387	50,172	45,109	51,678	235,817	104,973	160,634	130,418	119,317
Feb.	101,710	57,144	82,719	96,882	173,559	228,688	34,657	37,477	62,856	132,707	125,881	130,119	108,764	117,664
Mar.	206,321	84,257	95,065	128,321	206,072	248,319	32,009	27,838	79,730	173,871	149,634	213,123	149,079	189,420
Apr.	158,471	91,158	118,309	73,780	218,018	313,953	50,726	61,498	97,186	128,671	161,338	154,082	98,802	155,011
May	122,939	77,322	156,848	126,815	179,884	161,039	32,020	34,840	52,982	165,290	112,954	141,784	116,975	192,310
June	175,552	99,899	111,594	109,744	246,910	184,516	79,409	56,239	104,263	131,010	103,273	162,367	96,952	266,612
July	158,341	96,013	114,056	194,940	214,756	125,243	56,712	90,043	77,760	137,241	153,540	177,687	126,265	272,583
Aug.	124,897	106,772	100,849	122,468	158,656	80,605	37,563	44,740	97,682	165,590	146,382	172,485	98,953	259,015
Sept.	132,432	92,469	121,357	225,494	158,782	68,520	61,659	51,133	139,420	114,295	134,630	180,422	120,373	249,315
Oct.	62,267	154,756	118,841	240,942	128,658	50,946	59,262	80,521	124,707	142,565	159,132	162,739	158,593	250,000*
Nov.	132,835	153,084	99,316	141,945	184,043	49,637	34,093	62,437	117,755	102,399	132,916	140,794	103,557	225,000*
Dec.	99,070	163,445	84,383	203,124	148,379	67,800	35,282	37,004	108,048	96,601	144,103	169,553	124,251	225,000*
Total	1,628,641	1,256,639	1,305,049	1,748,144	2,296,954	1,762,453	583,584	628,877	1,114,067	1,726,057	1,628,756	1,965,769	1,432,972	2,521,256*
Mo. av.	135,720	104,720	108,754	145,679	191,413	146,871	48,965	52,406	92,841	143,838	135,729	163,814	119,414	210,105*
Approximate yearly total for industry								707,480	708,096	1,392,608				

Years 1910–1932 incl. Dept. of Commerce records; years 1933–1949 incl. A.I.S.C. records.
† The tonnages shown for 1936 to 1942 inclusive, 1946, 1947, 1948 and 1949 are estimated for the entire industry; for the years 1943, 1944 and 1945, they are on basis of tonnage actually reported to the institute. It is estimated that these reporting companies in 1943, 1944 and 1945 represented 80 pct of the total industry for the base years of 1923–1925.
* Estimated.
Source: American Institute of Steel Construction

EMPLOYMENT, AVERAGE HOURS AND EARNINGS

Reported by Companies Having More Than 93 Pct of the Total Employment of the Steel Industry

Year	Employees Receiving Wages					Employees Receiving Salaries			All Employees Receiving Wages and Salaries				
	Number of Employees	Total Hours Worked	Average hrs. per Week per Employee	Total Wages	Average Earnings per hr. (Cents)	Number of Employees	Total Hours Worked	Total Salaries	Number of Employees	Total Hours Worked	Average hrs. per Week per Employee	Total Wages and Salaries	Average Earnings per hr. (Cents)
1950:													
Jan.	480,875	82,040,999	38.5	141,097,315	172.0	87,103	15,529,724	36,130,373	567,978	97,570,723	38.8	177,227,688	181.6
Feb.	484,145	75,100,414	38.8	127,937,662	170.4	87,520	15,396,168	35,603,212	571,665	90,496,582	39.6	163,540,874	180.7
Mar.	486,193	83,583,434	38.8	141,850,887	169.7	87,573	15,781,852	39,955,261	573,766	99,365,086	39.1	177,806,148	178.9
April	491,035	81,058,051	38.5	138,372,937	170.7	87,790	15,521,309	35,896,627	578,825	96,579,360	38.9	174,269,564	180.4
May	497,447	87,461,830	39.7	150,586,449	172.2	88,076	15,885,591	36,524,166	585,523	103,347,421	39.8	187,110,615	181.1
June	503,943	85,052,917	39.3	145,781,365	171.4	88,670	15,872,423	37,049,671	592,613	100,925,340	39.7	182,831,036	181.2
July	509,700	79,903,708	35.5	139,357,645	174.4	89,611	15,841,572	37,275,582	599,311	95 745,280	38.1	176,633,227	184.5
Aug.	514,888	90,662,340	39.7	155,323,393	172.0	89,928	16,388,833	37,776,860	604,816	107,051,173	40.0	193,399,253	180.7
Sept.	515,261	86,936,542	39.4	152,759,103	175.7	90,099	16,044,003	37,981,682	605,360	102,980,545	39.7	190,740,985	185.2
1949	491,615	884,655,294	34.5	1,506,465,668	170.3	82,209	188,549,627	432,827,472	580,824	1,073,204,921	35.4	1,939,293,140	180.7
1948	503,351	1,028,519,481	39.1	1,675,913,066	162.9	88,196	191,044,219	412,845,319	591,547	1,219,563,700	39.4	2,088,758,385	171.3
1947	489,138	984,410,347	38.6	1,489,531,509	151.3	84,531	183,172,600	366,728,376	573,669	1,167,582,947	39.0	1,856,257,885	159.2
1946	458,259	836,870,389	35.0	1,133,503,371	135.4	79,889	173,301,314	317,780,089	538,148	1,010,171,703	36.0	1,451,283,460	143.7
1945	438,825	1,009,033,709	44.1	1,268,048,553	125.7	76,178	175,093,573	278,038,234	515,003	1,184,127,282	44.1	1,546,086,787	130.6
1944	458,662	1,112,029,921	46.6	1,365,342,466	122.8	76,969	178,320,937	275,170,922	535,651	1,290,350,858	46.3	1,640,513,388	127.1
1943	487,187	1,069,760,555	42.9	1,242,032,184	114.0	77,121	168,264,429	251,002,372	564,308	1,258,024,984	42.8	1,493,034,556	118.7
1942	511,414	1,036,968,871	38.9	1,101,787,008	106.3	71,511	151,390,870	226,941,787	582,925	1,188,359,741	39.1	1,328,728,795	111.8
1941	507,306	1,019,103,012	38.5	980,845,190	96.2	63,430	133,933,316	196,892,173	570,736	1,153,036,328	38.7	1,177,737,363	102.1
1940	453,990	857,770,926	36.1	733,364,058	85.5	57,338	122,522,777	169,864,608	511,328	980,293,703	36.7	903,228,666	92.1
1939	396,220	719,125,101	34.8	608,310,659	84.6	53,421	113,744,629	153,456,397	449,641	832,869,730	35.5	761,767,056	91.5
1938	360,365	518,408,035	27.6	433,372,123	83.6	52,742	107,763,785	143,236,899	413,107	626,169,820	29.1	576,609,022	92.1
1937	479,022	918,354,646	36.8	756,950,364	82.4	55,132	121,459,120	161,161,935	534,154	1,039,813,766	37.3	918,112,299	88.3
1936	429,111	893,745,272	39.8	599,629,059	67.1	45,162	98,673,490	123,280,276	474,273	992,418,762	40.0	722,909,335	72.8
1935	383,855	685,238,237	34.2	448,941,105	65.5	40,437	86,226,092	106,870,413	424,292	771,464,329	34.9	555,811,518	72.0

Source: American Iron & Steel Institute

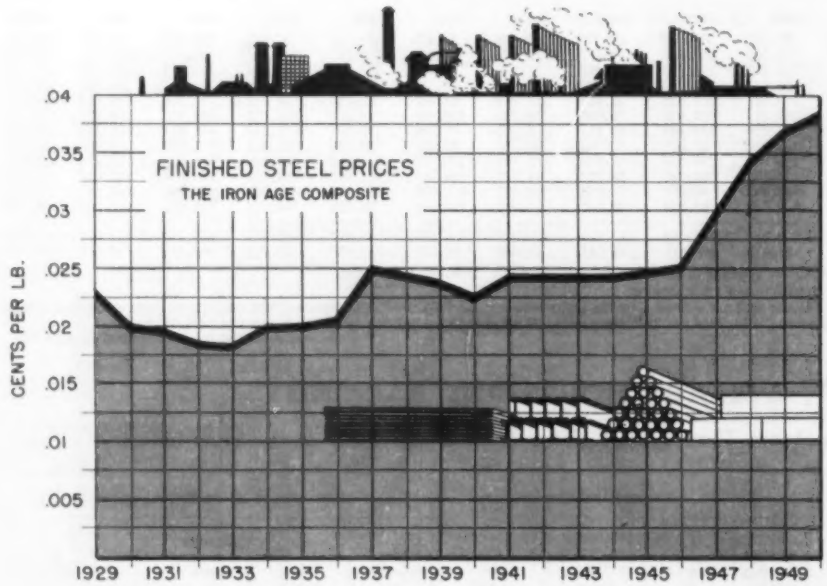


THE IRON AGE FINISHED STEEL COMPOSITE PRICE

Current Series, 1929 to 1950, Cents Per Pound

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
Jan.	2.278	2.229	1.991	1.852	1.830	1.958	2.065	2.076	2.323	2.584	2.354	2.305
Feb.	2.278	2.212	1.996	1.843	1.812	1.958	2.065	2.065	2.323	2.581	2.354	2.305
March	2.276	2.208	1.992	1.852	1.808	1.958	2.065	2.055	2.532	2.578	2.354	2.305
April	2.304	2.400	1.974	1.892	1.780	2.007	2.065	2.062	2.584	2.578	2.354	2.267
May	2.307	2.118	1.968	1.891	1.770	2.154	2.065	2.062	2.584	2.569	2.308	2.305
June	2.318	2.093	1.961	1.888	1.786	2.154	2.065	2.067	2.584	2.513	2.283	2.305
July	2.312	2.056	1.940	1.892	1.841	2.107	2.065	2.139	2.584	2.359	2.283	2.305
Aug.	2.294	2.031	1.943	1.889	1.851	2.065	2.065	2.139	2.584	2.359	2.283	2.305
Sept.	2.282	2.011	1.943	1.883	1.879	2.065	2.065	2.146	2.584	2.357	2.283	2.305
Oct.	2.270	2.001	1.942	1.873	1.955	2.065	2.076	2.172	2.584	2.320	2.283	2.305
Nov.	2.265	1.993	1.937	1.866	1.947	2.065	2.076	2.172	2.584	2.354	2.288	2.305
Dec.	2.278	1.975	1.902	1.861	1.958	2.065	2.076	2.263	2.584	2.354	2.305	2.305
Average	2.288	2.111	1.957	1.873	1.851	2.051	2.068	2.118	2.536	2.459	2.311	2.273

	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Jan.	2.396	2.436	2.464	2.464	2.412	2.464	2.877	3.193	3.720	3.837
Feb.		2.464	2.719	2.719	2.427	2.555	2.884	3.125	3.719	3.837
March		2.464	2.719	2.719	2.432	2.719	2.884	3.241	3.715	3.837
April		2.464	2.719	2.719	2.433	2.719	2.884	3.241	3.709	3.837
May		2.464	2.719	2.719	2.436	2.719	2.884	3.214	3.706	3.837
June		2.464	2.719	2.719	2.464	2.719	2.884	3.211	3.705	3.837
July		2.464	2.719	2.719	2.464	2.719	2.914	3.293	3.705	3.837
Aug.		2.464	2.719	2.719	2.464	2.719	3.193	3.720	3.705	3.837
Sept.		2.464	2.719	2.719	2.464	2.719	3.193	3.720	3.705	3.837
Oct.		2.464	2.719	2.719	2.464	2.719	3.193	3.720	3.705	3.837
Nov.		2.464	2.719	2.719	2.464	2.719	3.193	3.720	3.705	3.837
Dec.		2.464	2.719	2.719	2.464	2.747	3.193	3.720	3.756	4.131
Average		2.449	2.686	3.014	3.434	3.713	3.862			



THE IRON AGE finished steel composite price is a weighted average of the base prices of 10 major steel products which account for the majority of finished steel shipments. It is weighted by the percentage that each of these products is to total finished steel shipments during the base period. With the base constant, the only changes in the composite from 1929 through 1940 or from 1941 through 1949 occur when one or more steel products prices were changed.

In the composite shown here there are two base periods. For the years 1929 through 1940 the base is finished steel shipments for 1929-1939 inclusive. For 1941 through 1950 the base is finished steel shipments for the 7 years 1937 to 1940 inclusive and 1946 to 1948 inclusive. Two base periods are used because of basic changes in the shipment pattern in the 20 years covered. In each case the products remain the same. They are hot-rolled bars, structural shapes, plates, rails, pipe, wire and hot- and cold-rolled sheets and strip. To eliminate variations due to nonferrous metals price fluctuations, no coated products are included.

The composite price was first published on a weighted basis on August 28, 1941, at which time it was revised for the years 1929 to 1940 inclusive. These figures are shown here. In 1941, 1942 and 1943 the composite was based on shipments for those years and on November 16, 1944, it was changed to reflect quarterly shipments. After consultation with industrial and government statisticians all figures from 1941 forward were discarded as too sensitive. The revision, shown here, has been substituted from 1941 to the present because it is a more accurate method of reflecting price changes, eliminating changes due to short term and seasonal variations in the shipment pattern. Details of this revision appeared in THE IRON AGE, May 12, 1949, p. 139.

COLD-ROLLED SHEETS

At Pittsburgh, Cents Per Pound

	1929	1933	1936	1937	1938	1939
Jan.	4.10	2.35	2.95	3.25	3.55	3.20
Feb.	4.10	2.25	2.95	3.25	3.50	3.20
Mar.	4.10	2.30	2.95	3.49	3.45	3.20
Apr.	4.10	2.30	2.95	3.55	3.45	3.20
May	4.10	2.34	2.95	3.55	3.43	3.11
June	4.10	2.29	2.95	3.55	3.32	3.05
July	4.10	2.40	3.05	3.55	3.20	3.05
Aug.	4.06	2.47	3.05	3.55	3.20	3.05
Sept.	4.00	2.75	3.05	3.55	3.20	3.05
Oct.	4.00	2.75	3.05	3.55	3.08	3.05
Nov.	4.00	2.75	3.05	3.55	3.20	3.05
Dec.	3.98	2.75	3.25	3.55	3.20	3.05
Average	4.06	2.48	3.02	3.49	3.31	3.10

	1940*	1946*	1947	1948	1949	1950
Jan.	3.05	3.05	3.20	3.55	4.00	4.10
Feb.	3.05	3.16	3.20	3.55	4.00	4.10
Mar.	3.05	3.275	3.20	3.55	4.00	4.10
Apr.	2.93	3.275	3.20	3.55	4.00	4.10
May	3.05	3.275	3.20	3.49	4.00	4.10
June	3.05	3.275	3.20	3.49	4.00	4.10
July	3.05	3.275	3.27	3.62	4.00	4.10
Aug.	3.05	3.275	3.55	4.00	4.00	4.10
Sept.	3.05	3.275	3.55	4.00	4.00	4.10
Oct.	3.05	3.275	3.55	4.00	4.00	4.10
Nov.	3.05	3.275	3.55	4.00	4.00	4.10
Dec.	3.05	3.215	3.55	4.00	4.04	4.33
Average	3.04	3.242	3.35	3.73	4.00	4.12

* 1941-1945 = 3.05¢.

HOT-ROLLED SHEETS

At Pittsburgh, Cents Per Pound

	1929	1934	1937	1938	1939	1940*
Jan.	2.10	1.75	2.15	2.40	2.15	2.10
Feb.	2.10	1.75	2.15	2.40	2.15	2.10
Mar.	2.10	1.75	2.35	2.40	2.15	2.10
Apr.	2.10	1.81	2.40	2.40	2.15	2.10
May	2.13	2.00	2.40	2.38	2.06	1.98
June	2.20	2.00	2.40	2.27	2.00	2.10
July	2.14	1.88	2.40	2.15	2.00	2.10
Aug.	2.10	1.85	2.40	2.15	2.00	2.10
Sept.	2.10	1.85	2.40	2.15	2.00	2.10
Oct.	2.10	1.85	2.40	2.03	2.00	2.10
Nov.	2.10	1.85	2.40	2.15	2.02	2.10
Dec.	2.18	1.85	2.40	2.15	2.10	2.10
Average	2.12	1.85	2.35	2.25	2.06	2.09

	1945*	1946	1947	1948	1949	1950
Jan.	2.10	2.20	2.50	2.80	3.26	3.35
Feb.	2.10	2.31	2.50	2.80	3.26	3.35
Mar.	2.18	2.43	2.50	2.80	3.26	3.35
Apr.	2.20	2.43	2.50	2.80	3.26	3.35
May	2.20	2.43	2.50	2.77	3.25	3.35
June	2.20	2.43	2.50	2.77	3.25	3.35
July	2.20	2.43	2.56	2.89	3.25	3.35
Aug.	2.20	2.43	2.80	3.28	3.25	3.35
Sept.	2.20	2.43	2.80	3.28	3.25	3.35
Oct.	2.20	2.43	2.80	3.28	3.25	3.35
Nov.	2.20	2.43	2.80	3.28	3.25	3.35
Dec.	2.20	2.49	2.80	3.28	3.29	3.60
Average	2.18	2.40	2.63	3.00	3.26	3.37

* 1941-1944 = 2.10¢.

GALVANIZED SHEETS

At Pittsburgh, Cents Per Pound

	1929	1933	1934	1936	1937	1938
Jan.	3.60	2.88	2.85	3.10	3.40	3.80
Feb.	3.60	2.50	2.85	3.10	3.40	3.80
Mar.	3.60	2.60	2.85	3.10	3.72	3.80
Apr.	3.60	2.63	2.95	3.10	3.80	3.80
May	3.60	2.70	3.25	3.10	3.80	3.80
June	3.60	2.70	3.25	3.10	3.80	3.88
July	3.60	2.85	3.13	3.20	3.80	3.80
Aug.	3.50	2.85	3.10	3.20	3.80	3.80
Sept.	3.50	2.85	3.10	3.20	3.80	3.80
Oct.	3.50	2.85	3.10	3.20	3.80	3.46
Nov.	3.48	2.85	3.10	3.20	3.80	3.80
Dec.	3.40	2.85	3.10	3.40	3.80	3.50
Average	3.55	2.74	3.05	3.17	3.73	3.84

	1945†	1946	1947	1948	1950	1950
Jan.	3.50	3.70	3.55	3.95	4.40	4.40
Feb.	3.50	3.88	3.55	3.95	4.40	4.40
Mar.	3.62	4.05	3.55	3.95	4.40	4.40
Apr.	3.65	4.05	3.55	3.95	4.40	4.40
May	3.66	4.05	3.55	3.91	4.40	4.40
June	3.70	4.05	3.55	3.91	4.40	4.40
July	3.70	4.05	3.63	4.03	4.40	4.40
Aug.	3.70	4.05	3.95	4.40	4.40	4.40
Sept.	3.70	4.05	3.95	4.40	4.40	4.40
Oct.	3.70	4.05	3.95	4.40	4.40	4.40
Nov.	3.70	4.05	3.95	4.40	4.40	4.40
Dec.	3.70	*3.85	3.95	4.40	4.40	4.80
Average	3.65	3.99	3.72	4.13	4.40	4.43

* Based on 10 gage since December 1946; 24 gage base up to that time.

† 1939-1944 = 3.50¢.

STEEL RAILS AT PITTSBURGH, No. 1 OH

Including Prices by Months and Yearly Averages in Dollars Per 100 lb*

	1929	1932	1934	1936	1937	1938†
Jan.	$43.00	$43.00	$36.37	$36.37	$39.00	$42.50
Feb.	43.00	43.00	36.37	36.37	39.00	42.50
Mar.	43.00	43.00	36.37	36.37	41.80	42.50
Apr.	43.00	43.00	36.37	36.37	42.50	42.50
May	43.00	43.00	36.37	36.37	42.50	42.50
June	43.00	43.00	36.37	36.37	42.50	42.50
July	43.00	43.00	36.37	36.37	42.50	42.50
Aug.	43.00	43.00	36.37	36.37	42.50	42.50
Sept.	43.00	43.00	36.37	36.37	42.50	41.25
Oct.	43.00	42.25	36.37	36.37	42.50	40.00
Nov.	43.00	40.00	36.37	36.37	42.50	40.00
Dec.	43.00	40.00	36.37	39.00	42.50	40.00
Average	43.00	42.44	36.37	36.59	41.88	41.77

	1945†	1946	1947	1948	1949	1950
Jan.	$40.00	$43.00	$2.50	$2.75	$3.20	$3.40
Feb.	40.00	*43.19	2.50	2.75	3.20	3.40
Mar.	42.25	43.39	2.50	2.75	3.20	3.40
Apr.	43.00	43.39	2.50	2.75	3.20	3.40
May	43.00	43.39	2.50	2.70	3.20	3.40
June	43.00	43.39	2.50	2.70	3.20	3.40
July	43.00	43.39	2.50	2.80	3.20	3.40
Aug.	43.00	43.39	2.75	3.20	3.20	3.40
Sept.	43.00	43.39	2.75	3.20	3.20	3.40
Oct.	43.00	43.39	2.75	3.20	3.20	3.40
Nov.	43.00	43.39	2.75	3.20	3.20	3.40
Dec.	43.00	47.36	2.75	3.20	3.28	3.60
Average	42.44	43.67	2.60	2.93	3.21	3.42

* Prices quoted dollars per gross ton prior to Feb. 15, 1946. Net tons, Feb. 15 to Dec. 13, 1946.
† 1939-1944 = $40.00 per gross ton.

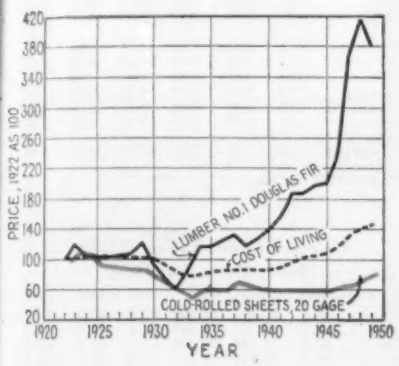
TINPLATE AT PITTSBURGH

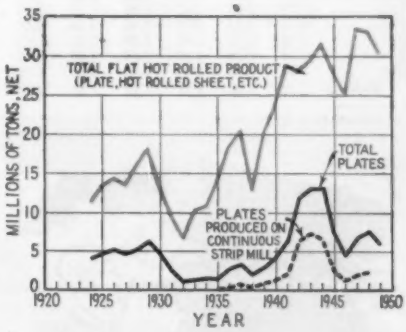
Dollars Per Base Box, 1.50-lb Coating

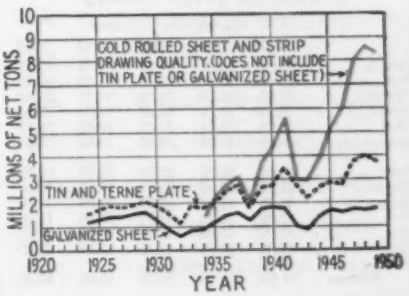
	1929	1930	1931	1933	1934	1936
Jan.	$5.35	$5.25	$5.00	$4.25	$5.25	$5.25
Feb.	5.35	5.25	5.00	4.25	5.25	5.25
March	5.35	5.25	5.00	4.25	5.25	5.25
April	5.35	5.25	5.00	4.25	5.25	5.25
May	5.35	5.25	5.00	4.25	5.25	5.25
June	5.35	5.25	5.00	4.25	5.25	5.25
July	5.35	5.25	5.00	4.25	5.25	5.25
Aug.	5.35	5.25	5.00	4.25	5.25	5.25
Sept.	5.35	5.25	5.00	4.65	5.25	5.25
Oct.	5.35	5.00	4.75	4.65	5.25	5.25
Nov.	5.35	5.00	4.75	4.65	5.25	5.25
Dec.	5.35	5.00	4.75	5.25	5.25	5.25
Average	5.35	5.19	4.94	4.43	5.25	5.25

	1937	1938*	1947*	1948	1949	1950
Jan.	$4.85	$5.35	$5.75	$6.80	$7.75	$7.50
Feb.	4.85	5.35	5.75	6.80	7.75	7.50
March	4.85	5.35	5.75	6.80	7.75	7.50
April	5.35	5.35	5.75	6.80	7.75	7.50
May	5.35	5.35	5.75	6.70	7.75	7.50
June	5.35	5.35	5.75	6.70	7.75	7.50
July	5.35	5.35	5.75	6.72	7.75	7.50
Aug.	5.35	5.35	5.75	6.80	7.75	7.50
Sept.	5.35	5.35	5.75	6.80	7.75	7.50
Oct.	5.35	5.35	5.75	6.80	7.75	7.50
Nov.	5.35	5.18	5.75	6.80	7.75	7.50
Dec.	5.35	5.00	5.75	6.91	7.75	7.50
Average	5.22	5.31	5.75	6.77	7.75	7.50

* 1939-1946 = $5.00.







STEEL PRICES AND PRODUCTION show some interesting aspects in these charts. The chart at the left above shows steel prices lagging behind and lumber prices exceeding the cost of living index. The tremendous increase in plate production on continuous strip mills, above right, during World War II is likely to be repeated this year. And cold-rolled sheet and strip output, right, will suffer.

COLD-ROLLED STRIP

At Pittsburgh, Cents Per Pound

	1929	1933	1936	1937	1938	1939
Jan.	2.85	1.88	2.60	2.85	3.20	2.95
Feb.	2.85	1.80	2.60	2.85	3.20	2.95
March	2.80	1.80	2.60	3.13	3.20	2.95
April	2.75	1.80	2.60	3.20	3.20	2.95
May	2.75	1.88	2.60	3.20	3.18	2.86
June	2.75	2.00	2.60	3.20	3.07	2.80
July	2.75	2.19	2.60	3.20	2.95	2.80
Aug.	2.75	2.25	2.60	3.20	2.95	2.80
Sept.	2.75	2.29	2.60	3.20	2.95	2.80
Oct.	2.75	2.40	2.60	3.20	2.83	2.80
Nov.	2.75	2.40	2.60	3.20	2.95	2.80
Dec.	2.75	2.40	2.80	3.20	2.95	2.80
Average	2.77	2.09	2.62	3.14	3.05	2.86

	1940*	1946*	1947	1948	1949	1950
Jan.	2.80	2.80	3.20	3.55	4.00	4.20
Feb.	2.80	2.93	3.20	3.55	4.00	4.21
March	2.80	3.05	3.20	3.55	4.00	4.21
April	2.68	3.05	3.20	3.55	4.00	4.21
May	2.80	3.05	3.20	3.53	4.00	4.21
June	2.80	3.05	3.20	3.53	4.00	4.21
July	2.80	3.05	3.27	3.85	4.00	4.21
Aug.	2.80	3.05	3.55	4.00	4.00	4.21
Sept.	2.80	3.05	3.55	4.00	4.00	4.21
Oct.	2.80	3.05	3.55	4.00	4.00	4.21
Nov.	2.80	3.05	3.55	4.00	4.00	4.21
Dec.	2.80	3.17	3.55	4.00	4.06	4.75
Average	2.79	3.03	3.35	3.76	4.01	4.25

* 1941-1945 = 2.80¢.

HOT-ROLLED STRIP

At Pittsburgh, Cents Per Pound

	1929	1933	1936	1937	1938	1939
Jan.	1.90	1.45	1.85	2.15	2.40	2.15
Feb.	1.80	1.45	1.85	2.15	2.40	2.15
Mar.	1.80	1.45	1.85	2.35	2.40	2.15
Apr.	1.90	1.45	1.85	2.40	2.40	2.15
May	1.90	1.49	1.85	2.40	2.38	2.06
June	1.90	1.55	1.85	2.40	2.27	2.00
July	1.90	1.60	1.95	2.40	2.15	2.00
Aug.	1.90	1.64	1.95	2.40	2.15	2.00
Sept.	1.97	1.68	1.95	2.40	2.15	2.00
Oct.	1.90	1.75	1.95	2.40	2.03	2.00
Nov.	1.90	1.75	1.95	2.40	2.15	2.02
Dec.	1.90	1.75	2.11	2.40	2.15	2.10
Average	1.88	1.58	1.91	2.35	2.25	2.06

	1940†	1946*	1947	1948	1949	1950
Jan.	2.10	2.10	2.50	2.80	3.26	3.25
Feb.	2.10	2.23	2.50	2.80	3.26	3.25
Mar.	2.10	2.35	2.50	2.80	3.26	3.25
Apr.	1.98	2.35	2.50	2.80	3.26	3.25
May	2.10	2.35	2.50	2.80	3.25	3.25
June	2.10	2.35	2.50	2.80	3.25	3.25
July	2.10	2.35	2.58	2.90	3.25	3.25
Aug.	2.10	2.35	2.80	3.28	3.25	3.25
Sept.	2.10	2.35	2.80	3.28	3.25	3.25
Oct.	2.10	2.35	2.80	3.28	3.25	3.25
Nov.	2.10	2.35	2.80	3.28	3.25	3.25
Dec.	2.10	2.47	2.80	3.28	3.25	3.50
Average	2.09	2.33	2.63	3.03	3.26	3.27

* Over 6 in.; add 0.10¢ for 6 in. and under from February through November 1946.
† 1941-1945 = 2.10¢.

PLATES AT PITTSBURGH

Cents Per Pound, 1929 to 1950

	1929	1932	1933	1936	1937	1938*
Jan.	1.90	1.50	1.60	1.80	2.05	2.25
Feb.	1.90	1.50	1.60	1.80	2.05	2.25
Mar.	1.90	1.52	1.60	1.80	2.21	2.25
Apr.	1.95	1.60	1.55	1.80	2.25	2.25
May	1.95	1.60	1.50	1.80	2.25	2.25
June	1.95	1.60	1.53	1.80	2.25	2.22
July	1.95	1.60	1.60	1.90	2.25	2.10
Aug.	1.95	1.60	1.60	1.90	2.25	2.10
Sept.	1.95	1.60	1.60	1.90	2.25	2.10
Oct.	1.94	1.60	1.70	1.90	2.25	2.10
Nov.	1.90	1.60	1.70	1.90	2.25	2.10
Dec.	1.90	1.60	1.70	1.90	2.25	2.10
Average	1.93	1.57	1.61	1.85	2.21	2.17

	1945*	1946	1947	1948	1949	1950
Jan.	2.10	2.25	2.65	2.95	3.50	3.50
Feb.	2.10	2.38	2.65	2.95	3.50	3.50
Mar.	2.20	2.50	2.65	2.95	3.50	3.50
Apr.	2.20	2.50	2.65	2.95	3.50	3.50
May	2.21	2.50	2.65	2.93	3.40	3.50
June	2.25	2.80	2.71	2.93	3.40	3.50
July	2.25	2.50	2.95	3.07	3.40	3.50
Aug.	2.25	2.50	2.95	3.50	3.40	3.50
Sept.	2.25	2.50	2.95	3.50	3.40	3.50
Oct.	2.25	2.50	2.95	3.50	3.40	3.50
Nov.	2.25	2.50	2.95	3.50	3.40	3.50
Dec.	2.25	2.90	2.95	3.50	3.44	3.70
Average	2.21	2.47	2.80	3.19	3.43	3.52

* 1939-1944 = 2.10¢.

1 METAL FACTS SECTION

Steel Prices: Bars, Wire, Shapes, Stainless Steel Sheets, Iron and Steel Pipe and Tool Steel.

COLD-FINISHED STEEL BARS

At Pittsburgh, Cents Per Pound

	1929	1933	1936	1937	1938	1939*
Jan.	1.90	1.70	2.10	2.55	2.90	2.70
Feb.	1.90	1.70	2.10	2.55	2.90	2.70
Mar.	1.90	1.70	2.10	2.83	2.90	2.70
Apr.	1.95	1.70	2.10	2.90	2.90	2.70
May	1.95	1.70	2.10	2.90	2.90	2.68
June	1.95	1.70	2.10	2.90	2.70	2.65
July	1.95	1.70	2.25	2.90	2.70	2.65
Aug.	1.95	1.70	2.25	2.90	2.70	2.65
Sept.	1.94	1.95	2.25	2.90	2.70	2.65
Oct.	1.90	1.95	2.35	2.90	2.70	2.65
Nov.	1.90	1.95	2.35	2.90	2.70	2.65
Dec.	1.90	2.10	2.35	2.90	2.70	2.65
Average	1.92	1.80	2.20	2.84	2.78	2.67

	1945*	1946	1947	1948	1949	1950
Jan.	2.65	2.75	3.20	3.55	3.98	4.145
Feb.	2.65	2.93	3.20	3.55	3.98	4.145
Mar.	2.65	3.10	3.20	3.55	3.98	4.145
Apr.	2.65	3.10	3.20	3.55	3.98	4.145
May	2.65	3.10	3.20	3.50	3.98	4.145
June	2.65	3.10	3.20	3.50	3.98	4.145
July	2.65	3.10	3.27	3.62	3.98	4.145
Aug.	2.73	3.10	3.55	3.98	3.98	4.145
Sept.	2.75	3.10	3.55	3.98	3.98	4.145
Oct.	2.75	3.10	3.55	3.98	3.98	4.148
Nov.	2.75	3.10	3.55	3.98	3.98	4.15
Dec.	2.75	3.10	3.55	3.98	4.01	4.55
Average	2.69	3.06	3.35	3.74	3.98	4.179

* 1940-1944 = 2.65¢.

MERCHANT BARS

At Pittsburgh, Cents Per Pound

	1929	1933	1936	1937	1938	1939*
Jan.	$1.90	$1.60	$1.85	$2.20	$2.45	$2.25
Feb.	1.90	1.60	1.85	2.20	2.45	2.25
Mar.	1.90	1.60	1.85	2.40	2.45	2.25
Apr.	1.95	1.60	1.85	2.45	2.45	2.25
May	1.95	1.60	1.85	2.45	2.45	2.19
June	1.95	1.60	1.85	2.45	2.41	2.15
July	1.95	1.60	1.95	2.45	2.25	2.15
Aug.	1.95	1.60	1.95	2.45	2.25	2.15
Sept.	1.94	1.60	1.95	2.45	2.25	2.15
Oct.	1.90	1.75	2.07	2.45	2.25	2.15
Nov.	1.90	1.75	2.05	2.45	2.25	2.15
Dec.	1.90	1.75	2.03	2.45	2.25	2.15
Average	1.92	1.64	1.95	2.40	2.35	2.19

	1945*	1946	1947	1948	1949	1950
Jan.	$2.15	$2.25	$2.60	$2.90	$3.45	$3.45
Feb.	2.15	2.38	2.60	2.90	3.45	3.45
Mar.	2.15	2.50	2.60	2.90	3.43	3.45
Apr.	2.15	2.50	2.60	2.90	3.35	3.45
May	2.17	2.50	2.60	2.87	3.35	3.45
June	2.25	2.50	2.60	2.87	3.35	3.45
July	2.25	2.50	2.66	3.00	3.35	3.45
Aug.	2.25	2.50	2.90	3.45	3.35	3.45
Sept.	2.25	2.50	2.90	3.45	3.35	3.45
Oct.	2.25	2.50	2.90	3.45	3.35	3.45
Nov.	2.25	2.50	2.90	3.45	3.39	3.45
Dec.	2.25	2.56	2.90	3.45	3.38	3.70
Average	2.21	2.47	2.73	3.13	3.37	3.47

* 1940-1944 = 2.15¢.

MANUFACTURER'S BRIGHT WIRE

At Pittsburgh, Cents Per Pound

	1929	1931	1933	1934	1937	1938*
Jan.	2.50	2.20	2.16	2.20	2.60	2.80
Feb.	2.50	2.20	2.10	2.20	2.60	2.80
Mar.	2.50	2.20	2.10	2.20	2.84	2.80
Apr.	2.50	2.20	2.10	2.23	2.90	2.80
May	2.50	2.20	2.10	2.30	2.90	2.80
June	2.50	2.20	2.10	2.30	2.80	2.84
July	2.50	2.20	2.10	2.30	2.90	2.80
Aug.	2.43	2.20	2.10	2.30	2.90	2.80
Sept.	2.40	2.20	2.10	2.30	2.90	2.80
Oct.	2.40	2.20	2.10	2.30	2.90	2.80
Nov.	2.40	2.20	2.10	2.30	2.90	2.80
Dec.	2.40	2.20	2.20	2.30	2.90	2.80
Average	2.46	2.20	2.11	2.27	2.84	2.74

	1945*	1946	1947	1948	1949	1950
Jan.	2.60	2.75	3.30	3.55	4.33	4.50
Feb.	2.60	2.90	3.30	3.55	4.33	4.50
Mar.	2.60	3.05	3.30	3.55	4.22	4.50
Apr.	2.60	3.05	3.30	3.55	4.15	4.50
May	2.63	3.05	3.30	3.60	4.15	4.50
June	2.75	3.05	3.30	3.60	4.15	4.50
July	2.75	3.05	3.35	3.77	4.15	4.50
Aug.	2.75	3.05	3.55	4.33	4.15	4.50
Sept.	2.75	3.05	3.55	4.33	4.15	4.50
Oct.	2.75	3.05	3.55	4.33	4.15	4.50
Nov.	2.75	3.05	3.55	4.33	4.15	4.50
Dec.	2.75	3.10	3.55	4.33	4.29	4.85
Average	2.69	3.02	3.41	3.90	4.20	4.33

* 1939-1944 = 2.60¢.

STAINLESS STEEL SHEETS

No. 304, Cents Per Pound

	1937*	1946*	1948	1949	1950
Jan.	35.00	36.00	39.00	41.25	39.50
Feb.	35.00	36.00	39.00	41.25	39.50
March	36.00	36.00	39.00	41.25	39.50
April	36.00	38.21	39.00	40.81	39.50
May	36.00	38.95	39.00	39.50	39.50
June	36.00	38.95	39.00	39.50	39.50
July	36.00	38.95	39.00	39.50	40.52
Aug.	36.00	38.95	40.80	39.50	41.00
Sept.	36.00	38.95	40.37	39.50	41.00
Oct.	36.00	38.95	40.81	39.50	41.00
Nov.	36.00	38.95	41.25	39.50	41.00
Dec.	36.00	38.95	41.25	39.50	43.00
Average	35.90	38.15	39.79	40.06	40.38

* 1938-1945 = 36.00¢



HIGH SPEED TOOL STEEL

18-4-1, Cents Per Pound

	1938*	1946*	1947	1948	1949	1950
Jan.	80.0	67.00	72.494	82.0	90.5	100.0
Feb.	76.8	69.792	72.494	82.0	90.5	100.0
Mar.	67.0	72.494	72.494	82.0	90.5	100.0
Apr.	67.0	72.494	74.00	82.0	90.5	100.0
May	67.0	72.494	74.00	82.0	90.5	100.0
June	67.0	72.494	74.00	82.0	90.5	100.0
July	67.0	72.494	74.00	82.0	90.5	100.0
Aug.	67.0	72.494	82.00	90.5	90.5	100.0
Sept.	67.0	72.494	82.00	90.5	90.5	100.0
Oct.	67.0	72.494	82.00	90.5	90.5	100.0
Nov.	67.0	72.494	82.00	90.5	90.5	100.0
Dec.	67.0	72.494	82.00	90.5	90.5	110.0
Average	68.9	71.81	75.58	85.5	90.5	100.0

* 1939-1945 = 67.0¢.

CAST IRON WATER PIPE

At New York, Net Ton, 6-in. and Larger

	1929	1932	1933	1936	1937	1938
Jan.	$39.60	$30.20	$35.20	$45.20	$48.00	$53.00
Feb.	39.35	29.70	35.30	45.20	48.00	53.00
Mar.	38.60	28.40	35.30	45.20	51.00	53.00
Apr.	37.40	28.20	35.30	45.20	53.00	53.00
May	35.85	28.20	35.30	45.20	53.00	53.00
June	35.10	28.20	38.30	45.20	53.00	52.20
July	33.20	28.73	38.30	45.90	53.00	49.00
Aug.	33.60	31.10	38.30	45.90	53.00	49.00
Sept.	33.60	31.30	38.30	45.90	53.00	49.00
Oct.	34.60	33.30	38.00	45.90	53.00	49.00
Nov.	34.60	33.30	43.00	45.90	53.00	49.00
Dec.	34.60	34.30	43.00	47.90	53.00	49.00
Average	35.84	30.41	37.81	45.71	52.00	50.93

	1939*	1946*	1947	1948	1949	1950
Jan.	$49.00	$57.20	$73.80	$89.18	$105.95	$94.95
Feb.	49.00	57.20	73.75	89.18	105.95	92.36
Mar.	49.00	60.20	78.80	89.18	105.95	91.50
Apr.	49.00	62.20	79.80	89.18	103.98	91.50
May	49.00	62.20	79.80	92.34	94.95	91.50
June	49.00	62.20	79.80	95.50	94.95	91.50
July	49.00	69.80	80.50	95.50	94.95	91.50
Aug.	49.00	69.80	83.30	103.86	94.95	91.50
Sept.	49.00	69.80	83.30	105.95	94.95	91.50
Oct.	52.20	69.80	83.96	105.95	94.95	95.00
Nov.	52.20	69.80	84.18	105.95	94.95	95.00
Dec.	52.20	73.80	84.18	105.95	94.95	98.00
Average	49.80	65.23	80.25	97.31	98.45	92.98

* 1940-1945 = $52.20.

BUTWELD STEEL PIPE

At Pittsburgh, Per Net Ton, Carload Lots

	1929	1931	1933	1934	1936	1937
Jan.	$70.30	$66.50	$65.00	$61.75	$68.40	$61.00
Feb.	70.30	66.50	65.00	61.75	64.98	61.00
Mar.	70.30	66.50	65.00	61.75	61.00	69.00
Apr.	70.30	66.50	58.00	63.41	61.00	71.00
May	70.30	63.59	58.00	68.40	61.00	71.00
June	70.30	64.94	58.00	68.40	61.00	71.00
July	70.30	64.84	61.75	68.40	61.00	71.00
Aug.	70.30	64.84	61.75	68.40	61.00	71.00
Sept.	70.30	64.84	61.75	68.40	61.00	71.00
Oct.	70.30	64.84	61.75	68.40	61.00	71.00
Nov.	70.30	64.84	61.75	68.40	61.00	71.00
Dec.	70.30	64.84	61.75	68.40	61.00	71.00
Average	70.30	65.29	61.63	66.32	62.01	69.17

	1938*	1946*	1947	1948	1949	1950
Jan.	$71.00	$83.00	$79.00	$88.00	$103.00	$108.00
Feb.	71.00	88.00	79.00	91.50	103.00	106.00
Mar.	71.00	89.00	79.00	95.00	103.00	106.00
Apr.	71.00	89.00	79.00	95.00	103.00	106.00
May	71.00	89.00	79.00	94.00	103.00	108.00
June	71.00	89.00	79.00	93.00	103.00	108.00
July	83.00	89.00	79.00	95.00	103.00	108.00
Aug.	83.00	89.00	88.00	103.00	103.00	108.00
Sept.	83.00	89.00	88.00	103.00	103.00	108.00
Oct.	83.00	89.00	88.00	103.00	103.00	108.00
Nov.	83.00	89.00	88.00	103.00	103.00	108.00
Dec.	83.00	71.00	88.00	103.00	105.00	117.00
Average	87.00	88.42	82.75	97.21	103.17	108.75

* 1939-1945 = $83.00.

Computed from list discounts, for carload lots; price for base size pipe, 1 to 3 in.; 1 in. only since August, 1947; ¾ to 3 in. prior to Apr. 13, 1931

STRUCTURAL STEEL SHAPES

At Pittsburgh, Cents Per Pound

	1929	1931	1932	1934	1936	1937
Jan.	1.90	1.64	1.50	1.70	1.80	2.06
Feb.	1.90	1.65	1.50	1.70	1.80	2.06
Mar.	1.90	1.65	1.52	1.70	1.80	2.21
Apr.	1.95	1.65	1.60	1.74	1.80	2.25
May	1.95	1.65	1.60	1.85	1.80	2.25
June	1.95	1.65	1.60	1.85	1.80	2.25
July	1.95	1.63	1.60	1.81	1.90	2.25
Aug.	1.95	1.60	1.60	1.80	1.90	2.25
Sept.	1.95	1.60	1.60	1.80	1.90	2.25
Oct.	1.90	1.60	1.60	1.80	1.90	2.25
Nov.	1.90	1.60	1.60	1.80	1.90	2.25
Dec.	1.90	1.50	1.60	1.80	1.90	2.25
Average	1.92	1.62	1.57	1.78	1.85	2.21

	1938*	1946*	1947	1948	1949	1950
Jan.	2.25	2.10	2.50	2.80	3.25	3.40
Feb.	2.25	2.23	2.50	2.80	3.25	3.40
Mar.	2.25	2.35	2.50	2.80	3.25	3.40
Apr.	2.25	2.35	2.50	2.80	3.25	3.40
May	2.25	2.35	2.50	2.75	3.25	3.40
June	2.22	2.35	2.50	2.75	3.25	3.40
July	2.10	2.35	2.50	2.85	3.25	3.40
Aug.	2.10	2.35	2.80	3.25	3.25	3.40
Sept.	2.10	2.35	2.80	3.25	3.25	3.40
Oct.	2.10	2.35	2.80	3.25	3.25	3.40
Nov.	2.10	2.35	2.80	3.25	3.25	3.40
Dec.	2.10	2.35	2.80	3.25	3.31	3.66
Average	2.17	2.32	2.63	3.00	3.26	3.42

* 1939-1945 = 2.10¢.

Steel Shipments to Warehouses: Sheets and Strips, Plates, Shapes, Bars, Wire, Pipe and Tubing and Total Shipments.

METAL FACTS SECTION 1

STEEL SHIPMENTS TO WAREHOUSES

Net tons

HOT ROLLED STRIP

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1950 (9 Mo.)	99,052	1,693,627	5.85
1949	125,079	1,628,917	7.68
1948	142,873	1,568,540	9.11
1947	129,352	1,740,085	7.43
1946	107,905	1,383,812	7.91

COLD-ROLLED STRIP

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1950 (9 Mo.)	73,562	1,333,830	5.52
1949	83,534	1,380,477	6.05
1948	91,343	1,519,753	6.01
1947	47,349	1,499,121	3.16
1946	45,068	1,282,146	3.52

GALVANIZED SHEETS*

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1950 (9 Mo.)	691,557	1,732,640	39.9
1949	623,897	1,755,067	35.5
1948	481,266	1,643,337	29.3
1947	440,021	1,609,881	27.3
1946	440,457	1,462,053	30.1
1945	647,748	1,695,796	38.2
1944	537,020	1,370,175	39.2
1943	318,674	869,109	36.7
1942	283,196	998,584	28.4
1941	676,835	1,708,050	39.6
1940	733,848	1,588,723	46.2
1939	857,519	1,635,336	52.4

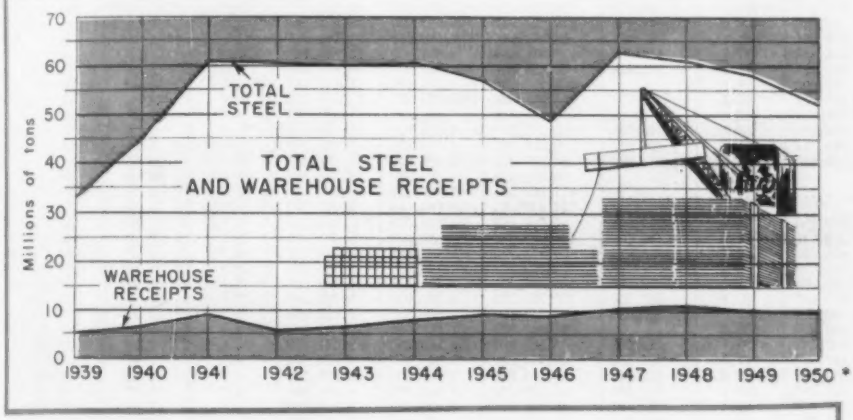
* 1946-47 includes coated sheets except tinplate and terneplate.

HOT-ROLLED SHEETS

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1950 (9 Mo.)	706,697	5,750,499	12.29
1949	673,690	6,211,458	10.85
1948	824,023	6,704,654	12.29
1947	871,393	7,300,881	11.94
1946	810,196	5,521,463	14.67

COLD-ROLLED SHEETS

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1950 (9 Mo.)	692,075	6,793,653	10.18
1949	590,779	6,942,201	8.51
1948	516,273	6,361,378	8.12
1947	459,335	5,504,578	8.34
1946	453,491	4,075,554	11.13



TOTAL STEEL PRODUCTS

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1950 (9*)	9,713,026	52,703,661	18.4
1949	10,219,983	58,104,010	17.59
1948	10,949,920	60,966,999	17.96
1947	10,484,144	63,057,150	16.63
1946	9,304,817	48,775,532	19.08
1945	9,571,436	57,242,240	16.72
1944	8,008,076	60,352,690	13.27
1943	6,823,780	59,905,646	11.39
1942	5,062,068	60,464,774	9.86
1941	9,155,159	61,229,873	14.95
1940	6,686,534	45,850,825	14.58
1939	5,179,660	33,122,628	15.63

* 9 Months.

PLATES

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1950 (9 Mo.)	581,535	3,926,105	14.8
1949	661,348	5,759,065	11.5
1948	822,149	6,762,678	12.2
1947	922,459	6,345,216	14.5
1946	709,728	4,152,181	17.1
1945	745,663	6,841,304	10.9
1944	778,498	11,955,559	6.5
1943	565,662	12,937,230	4.4
1942	456,562	11,612,987	3.9
1941	438,540	5,842,909	7.5
1940	313,663	4,065,383	7.7
1939	215,241	2,584,057	8.4

HOT-ROLLED BARS

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1950 (9 Mo.)	792,402	5,896,241	13.5
1949	968,695	6,418,102	15.4
1948	1,100,931	6,196,444	17.8
1947	1,219,939	7,983,848	15.3
1946	1,026,673	6,397,137	16.1
1945	1,114,482	5,727,387	19.5
1944	915,527	6,020,484	15.2
1943	923,598	5,982,673	15.4
1942	684,881	5,519,035	12.4
1941	750,821	5,788,821	13.0
1940	604,286	4,854,731	12.4

PIPE AND TUBING

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1950 (9 Mo.)	3,026,710	6,592,782	45.9
1949	3,268,231	6,935,220	47.1
1948	3,302,127	6,456,102	51.1
1947	2,825,666	6,117,884	46.2
1946	2,901,500	4,655,505	55.9
1945	2,243,123	5,752,782	39.0
1944	2,054,580	5,259,503	39.1
1943	1,847,843	5,116,671	32.2
1942	1,833,738	4,716,061	34.6
1941	2,892,424	5,868,939	45.7
1940	2,142,147	3,920,200	54.6
1939	983,957	3,318,746	29.6

WIRE AND WIRE PRODUCTS

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1950 (9 Mo.)	1,255,767	3,328,663	37.7
1949	1,297,742	3,486,271	37.2
1948	1,559,676	4,300,794	36.3
1947	1,368,090	4,174,602	32.7
1946	1,151,316	3,260,589	35.3
1945	1,248,598	3,228,718	38.7
1944	1,282,525	3,200,852	39.4
1943	1,306,300	3,276,874	39.9
1942	935,104	3,314,361	28.2
1941	1,538,347	3,794,538	40.5
1940	1,054,943	2,569,337	41.1
1939	1,045,367	2,614,962	39.9

STRUCTURAL SHAPES*

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1950 (9 Mo.)	591,578	3,069,869	19.0
1949	679,719	3,669,503	18.5
1948	772,815	4,190,934	18.4
1947	857,062	4,436,129	19.3
1946	786,651	3,474,294	22.6
1945	917,142	3,763,952	24.4
1944	571,884	3,912,951	14.6
1943	412,727	3,916,126	10.5
1942	419,708	5,290,162	7.8
1941	547,511	4,941,818	11.1
1940	331,523	3,333,450	9.9
1939	283,235	2,583,101	11.0

* 1940-45 includes piling.

Source for all tables on this page is American Iron & Steel Institute, compilation by American Steel Warehouse Assn. and THE IRON AGE

1 METAL FACTS SECTION

Steel Company Earnings, Capacity, Production, Operations, Sales, Shipments, Capital

FINANCIAL ANALYSIS OF THE STEEL INDUSTRY

For Years 1947, 1948, 1949. Data Cover 26 Companies Representing 92 Pct of Ingot Capacity

COMPANY	Year	Ingot Capacity Net Tons	Ingot Production Net Tons	Percent of Capacity Operated	Steel Shipments Net Tons	Net Sales and Operating Revenue	Provision for Federal Income Taxes	Net Income	Net Income Percent of Sales	Earnings Per Common Share	Invested Capital
U. S. Steel Corp.	1949	32,000,000	25,807,000	82.5	18,212,000	$2,301,685,689	$126,000,000	$165,908,829	7.2	$5.39	$1,983,557,284
	1948	31,300,000	29,300,000	93.8	20,700,000	2,481,508,535	109,000,000	129,627,845	5.2	12.00	1,904,614,189
	1947	31,200,000	28,600,000	96.7	20,200,000	2,122,786,243	91,000,000	127,098,148	6.0	11.71	1,588,100,650
Bethlehem Steel Corp.	1949	14,200,000	12,596,949	88.7	9,217,188	1,271,040,076	66,500,000	99,283,539	7.8	9.68	903,760,929
	1948	13,800,000	13,411,492	97.2	9,993,481	1,315,188,536	57,225,000	90,347,560	6.9	9.36	766,965,287
	1947	12,900,000	12,806,940	99.3	9,403,067	1,034,856,444	31,000,000	51,088,375	4.9	4.98	689,236,892
Republic Steel Corp.	1949	8,700,000	6,804,020	79.1	5,123,608	651,952,835	35,000,000	46,142,323	7.1	7.54	413,893,344
	1948	8,600,000	8,324,172	96.8	6,405,581	772,000,047	34,000,000	46,438,382	6.0	7.61	400,744,821
	1947	8,600,000	7,987,170	92.9	6,073,125	649,824,006	23,250,000	310,18,410	4.8	5.17	372,895,488
Jones & Laughlin Steel Corp.	1949	4,816,500	4,170,432	87.0	3,042,296	386,046,149	13,150,000	20,961,245	5.4	7.50	324,527,137
	1948	4,815,000	4,633,558	97.0	3,695,414	446,057,301	18,950,000	31,222,451	7.0	12.01	311,167,816
	1947	4,740,000	4,520,387	95.0	3,486,305	350,132,366	11,482,000	19,225,184	5.5	7.17	288,320,131
National Steel Corp.	1949	4,200,000				424,892,845	37,400,000	39,311,269	9.3	16.02	294,829,694
	1948	4,050,000				436,522,051	33,300,000	40,121,506	9.2	16.35	288,804,722
	1947	3,900,000				328,957,189	19,270,000	26,838,788	8.2	12.03	239,837,256
Youngstown Sheet & Tube Co.	1949	4,082,000	3,478,259	85.2	2,550,380	338,344,004	19,894,000	31,777,010	9.5	18.97	272,689,691
	1948	4,002,000	3,966,099	99.1	2,982,057	381,742,264	25,400,000	35,711,732	9.4	21.32	250,962,729
	1947	4,002,000	3,959,343	98.9	2,853,801	308,571,405	16,635,000	26,299,923	8.5	15.70	213,226,037
Armco Steel Corp.	1949	3,793,000	3,131,020	82.5	2,389,103	341,350,147	19,315,315	30,918,202	9.1	7.68	261,837,688
	1948	3,563,000	3,332,261	93.5	2,572,608	382,563,811	20,072,015	32,030,712	8.4	8.00	255,673,386
	1947	3,367,000	3,078,487	91.4	2,413,406	311,685,322	16,464,876	25,002,211	8.0	7.44	196,500,603
Inland Steel Co.	1949	3,400,000	3,019,655	88.8	2,715,398	347,640,710	15,935,000	25,013,707	7.2	5.11	256,783,206
	1948	3,400,000	3,533,374	103.9	3,252,681	394,716,908	23,221,000	38,606,898	9.8	7.88	231,311,697
	1947	3,400,000	3,299,328	97.0	2,941,990	315,031,042	18,485,000	29,888,558	9.5	6.10	192,002,744
Sharon Steel Corp.	1949	1,672,000	1,001,626	59.9	738,584	90,068,564	1,650,000	3,325,964	3.7	5.39	49,917,082
	1948	1,672,000	1,298,383	77.7	964,987	118,849,560	5,811,000	9,234,983	7.8	14.96	48,525,580
	1947	1,672,000	1,222,887	76.6	912,962	94,130,807	4,225,000	6,722,019	7.1	10.89	33,994,671
Wheeling Steel Corp.	1949	1,536,000	1,227,600	79.9		143,419,446	5,819,000	7,896,265	5.5	10.68	158,195,963
	1948	1,409,000	1,303,424	92.5		154,953,406	10,000,000	15,050,045	9.7	23.24	155,546,764
	1947	1,409,000	1,285,832	91.3		131,721,128	7,760,000	11,651,579	8.8	17.27	144,625,838
Colorado Fuel & Iron Corp.	1949	1,472,000	1,446,693	98.3	1,348,138	138,344,200	6,059,200	10,182,919	7.4	8.46	77,408,438
	1948	1,472,000	1,395,717	94.8	1,225,027	118,858,896	3,659,100	6,181,777	5.2	5.04	66,942,398
	1947	1,448,640	1,369,460	94.5	1,046,008	94,740,442	2,676,815	5,088,676	5.4	4.07	60,314,493
Crucible Steel Co. of America	1949	1,112,984				99,393,228	351,827	1,352,764	1.4	None	92,304,721
	1948	1,277,133				131,360,030	2,748,021	3,596,177	2.7	4.15	93,418,780
	1947	1,253,650				110,503,836	1,064,466	2,064,887	1.9	1.12	89,762,980
Pittsburgh Steel Co.	1949	1,072,000	717,253	66.9	595,486	80,559,351	624,000	844,810	1.1	.04	54,186,177
	1948	1,072,557	976,218	91.0	774,108	102,858,785	4,350,000	5,484,090	5.3	9.07	54,841,029
	1947	1,072,557	1,006,888	93.9	737,978	85,873,537	3,175,000	4,019,637	4.7	6.20	51,810,390
Allegheny Ludlum Steel Corp.	1949	832,360	362,813	57.8	297,635	105,863,359	1,200,000	1,967,324	1.9	1.15	52,659,400
	1948	496,360	462,306	93.1	428,000	126,780,255	4,601,358	6,833,384	5.4	5.05	54,069,677
	1947	496,360	411,107	82.8	357,000	106,783,183	4,063,068	6,002,657	5.6	4.66	39,738,371
Lukens Steel Co.	1949	675,000	545,253	80.8	306,450	55,825,306	1,640,330	1,930,045	3.5	6.07	23,107,877
	1948	624,000	647,876	103.8		61,460,919	1,675,000	2,411,604	3.9	7.35	17,985,645
	1947	624,000	637,347	102.1	442,550	48,591,687	1,748,200	2,697,117	5.6	8.92	15,912,819
Portsmouth Steel Co.	1949	660,000	511,647	77.5	326,386	49,744,601	3,012,000	4,885,424	9.8	3.87	21,750,173
	1948	660,000	647,816	98.2	523,096	56,904,664	2,600,000	4,511,550	7.7	3.54	19,300,975
	1947	660,000	667,011	101.1	528,968	49,459,952	2,358,000	3,944,969	8.0	3.03	16,412,741
Granite City Steel Co.	1949	620,000	531,824	85.8	464,131	46,496,523	1,890,000	2,958,109[4]	6.4	7.44	21,050,032
	1948	620,000	493,720	79.6	408,449	41,370,688	2,370,000	3,267,707	7.9	8.54	20,396,133
	1947	500,000	440,398	88.1	347,047	25,869,719	880,000	1,941,899	7.5	5.08	18,491,504
Copperweld Steel Co.	1949	554,400				42,706,329	900,000	1,737,506	4.1	3.24	15,620,337
	1948	554,400				75,570,115	3,414,500	4,989,019	6.6	9.54	13,814,294
	1947	480,000				53,303,245	1,179,500	1,546,711	2.9	2.85	14,784,035
Alan Wood Steel Co.	1949	550,000	381,710	69.4	270,803	35,895,460	1,480,000	2,255,840	6.3	3.76	27,548,014
	1948	550,000	530,691	96.5	425,114	47,480,574	2,842,000	4,116,444	8.7	7.78	25,738,866
	1947	550,000	449,945	81.8	323,853	35,971,661	1,238,000	1,955,446	5.4	7.26	17,209,001
The Midvale Co.	1949	449,950	67,647	15.0		13,739,443	None	*1,094,387*	*8.0*	*1.82*	15,784,139
	1948	517,322	64,962	12.6		10,509,015	None	*1,665,718*	*15.9*	*2.78*	17,734,454
	1947	517,322	84,020	16.2		14,829,373	None	*1,186,727*	*8.0*	*1.98*	20,449,121
Barium Steel Corp.	1949	406,000	186,485	45.9	131,414	33,885,546	809,463	711,452	2.1	.33	13,295,963
	1948	441,000	390,000	88.4	310,000	51,257,670	2,048,176	2,615,270	5.3	1.32	12,552,426
	1947	387,000	318,000	82.2	280,000	41,365,948	1,104,564	1,689,213	4.1	.84	10,252,135
Continental Steel Corp.	1949	384,000	239,736	65.9		22,505,562	785,000	636,718	2.8	1.27	14,978,249
	1948	384,000	317,927	87.3		29,743,309	1,200,000	1,625,150	5.5	3.24	15,093,600
	1947	364,000	316,644	87.0		27,086,139	890,000	1,296,874	4.8	2.58	12,809,323
Rotary Electric Steel Co.	1949	420,000	247,350	58.9	213,976	16,865,512	955,000	1,287,063	7.6	6.7	10,093,290
	1948	340,000	247,658	94.5	227,280	18,940,250	1,500,000	2,496,859	13.2	12.94	6,081,237
	1947	255,000	201,556	79.0	176,246	16,500,149	544,000	903,360	5.5	5.41	4,469,191
Laclede Steel Co.	1949	326,025	283,488	87.0	263,862	31,209,110	1,815,000	2,718,352	8.7	13.18	12,733,916
	1948	326,025	278,170	85.3	284,538	34,072,411	1,165,000	1,767,863	5.2	8.57	11,178,504
	1947	326,025	288,038	88.3	272,852	26,283,120	956,913	1,429,035	5.4	6.93	9,772,843
Northwestern Steel & Wire Co.	1949	321,000	288,814	90.0	231,193	28,564,916	1,195,000	2,243,938	7.9	2.74	6,761,176
	1948	321,000	287,670	89.6	235,385	26,641,518	1,180,000	1,680,477	7.0	2.27	5,539,518
	1947	321,000	281,045	81.3		21,185,519	1,319,000	1,932,747	9.1	2.38	4,676,986
Keystone Steel & Wire Co.	1949	302,400	306,131	101.9	276,683	36,735,489	2,600,053	5,084,181	13.8	2.71	16,582,398
	1948	302,400	298,882	98.8	265,264	34,504,429	2,060,598	4,167,550	12.1	2.22	15,373,217
	1947	302,400	286,561	95.4	273,151	31,573,658	2,458,436	4,672,934	14.8	7.48	13,580,666
GRAND TOTAL	1948	86,549,197	80,565,700	94.0[2]	60,035,000[3]	$7,859,579,001	$374,392,768	$522,734,361	6.7		$5,026,661,548
	1947	84,747,954	77,153,400	92.9[2]	57,382,000[3]	6,437,617,120	265,250,838	394,832,630	6.1		4,360,286,787
Percent change, 1948 over 1947		+2.1	+4.4			+22.1	+41.1	+32.4			+15.3
GRAND TOTAL	1949	88,537,619	71,700,000[1]	81.0[2]	53,705,000[3]	$7,134,776,400	$365,240,409	$510,240,409	7.2		$5,395,896,275
	1948	86,549,197	80,565,700[1]	94.0[2]	60,035,000[3]	7,861,587,539	374,392,768	522,471,317	6.7		5,044,411,548
Percent change, 1949 over 1948		+2.3	−11	−13.8	−11	−9.2	−2.2	−2.3	+7.5		+7.0

[1] Estimated, based on national operating rate so as to include companies listed above that do not publish production figures.
[2] National rate for entire industry by American Iron & Steel Institute.
[3] Estimated.
[4] After $100,000 appropriation for inventory price declines.
Italics indicate loss.

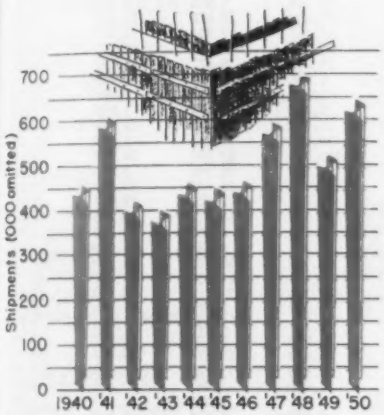
ROLLING MILLS DISMANTLED—1950

Companies, Location of Works and Products

Company	Location of Works	Products
Colorado Fuel & Iron Corp.	Pueblo, Colo.	Rods.
Jones & Laughlin Steel Corp.	Pittsburgh	Large hot-rolled rounds and squares.
Jones & Laughlin Steel Corp.	Pittsburgh	Small hot-rolled bars and shapes.
Jones & Laughlin Steel Corp.	Pittsburgh	Small hot-rolled bars and shapes.
Youngstown Sheet & Tube Co.	East Chicago	2" to 8" dia. lap weld pipe
Rotary Electric Steel Co.	Detroit	Bars (temporary facilities)
Republic Steel Corp.	Pittsburgh	Tie plate bars

REROLLED RAIL STEEL SHIPMENTS

NET TONS



REROLLED RAIL STEEL

(Shipments—Net Tons)

Year	Concrete Bars	Carbon Bars	Other Products	Total
1940	155,188	213,551	85,331	454,070
1941	224,761	290,732	92,050	607,543
1942	223,015	136,161	65,243	424,419
1943	100,376	199,567	102,927	402,870
1944	96,265	246,274	118,242	460,781
1945	115,159	236,009	99,527	450,695
1946	181,141	225,632	61,877	468,650
1947	236,322	263,066	90,085	589,473
1948	248,768	308,661	145,649	703,079
1949	223,325	234,877	71,013	529,215
1950*	223,600	321,000	105,000	649,600

* Includes estimate on last 2 months.

Source: Rail Steel Bar Assn.

Is American industry, including steel, heading into a straitjacket? Read "Industry's Future" on p. 263 for the duties of the vice-president in charge of the president. . . . Everyone will be selling to the Government this year; "How to Sell to Uncle Sam" (p. 269) is a briefing on the fundamentals of selling to the armed forces.

STEEL ROLLING MILL INSTALLATIONS

Built or Modernized During 1950—As Reported To The Iron Age

Company	Location of Works	Builder	Date Delivered	New or Modernized	Type
Allegheny Ludlum Steel Corp.	W. Leechburg, Pa.	Lewis Foundry & Machine Co.	1950	New	25-in. x 42-in. 2-H skin pass
Armco Steel Corp.	Middletown, O.	United	Dec. 1950	Modernized	80-in. hot strip
Bethlehem	Lackawanna	Birdsboro Foundry & Machine Co.	1950	New	18-in.—16-in.—12-in. cross-country bar mill
Bethlehem Steel Co.	Lackawanna	Mesta	1950	New	25-in. & 49-in. x 79-in. hot strip
Bethlehem Steel Co.	Lackawanna	Mesta	1950	New	54-in. slabbing-blooming stand
Bethlehem Steel Co.	Lackawanna	Mesta	1950	Modernized	79-in. hot strip
Bethlehem Steel Co.	Lackawanna	Mesta	1950	Modernized	20-in. & 49-in. x 54-in. 4-H cold
Columbia Steel Co.	Torrance	Mesta	1950	New	21-in. & 50-in. x 80-in. 4-stand 4-H tandem cold
Granite City Steel Co.	Granite City	United	Nov. 1950	Modernized	Tandem temper
Jones & Laughlin Steel Corp.	Cleveland	United	May 1950	Modernized	77-in. hot strip
Jones & Laughlin Steel Corp.	Pittsburgh	Mesta	1950	Modernized	96-in. hot strip
Kaiser Engineering	Fontana	United	Jan. 1950	New	80-in. hot strip finishing
Midvale Steel Co.	Philadelphia	Birdsboro Foundry & Machine Co.	1950	New	24-in. ring mill
Northwestern Steel & Wire	Sterling, Ill.	Birdsboro Foundry & Machine Co.	1950	New	16-in.—14-in.—12-in. merch. & narrow strip mill
Republic Steel Corp.	Cleveland	United	Nov. 1950	Modernized	98-in. hot strip
Republic Steel Corp.	Cleveland	United	Dec. 1950	New	54-in. skin pass
Sheffield Steel Corp.	Houston	Lewis Foundry & Machine Co.	1950	Modernized	100-in. plate
Sheffield Steel Corp.	Kansas City	Morgan Const. Co.	1950	Modernized	10-in. rod mill
Sheffield Steel Corp.	Houston	Morgan Const. Co.	1950	Modernized	19-in. sheet bar & billet
Sheffield Steel Corp.	Houston	United	June 1950	Modernized	110-in. plate
Sheffield Steel Corp.	Houston	United	Aug. 1950	New	130-in. 4-H Rev. Plate
Thompson Wire Co.	Franklin Park, Ill.	United	Sept. 1950	New	10½-in. & 33-in. x 24-in. Rev. cold mill
Thomas Steel	Warren, O.	United	May 1950	New	10½-in. & 28-in. x 24-in. tandem cold mill
Washburn Wire	Phillipsdale, R. I.	Morgan Const. Co.	1950	Modernized	No. 2 rod mill
Wallace Barnes	Bristol, Conn.	United	Feb. 1950	New	7¼-in. & 28-in. x 17-in. rev. cold mill
Weirton Steel Co.	Weirton	United	Dec. 1950	Modernized	66-in. hot strip
Youngstown Sheet & Tube Co.	Indiana Harbor	Morgan Const. Co.	1950	Modernized	10-in. skelp mill
Youngstown Sheet & Tube Co.	Indiana Harbor	Morgan Const. Co.	1950	Modernized	21-in. sheet bar mill
Youngstown Sheet & Tube Co.	Youngstown	United	Sept. 1950	Modernized	44-in. blooming

STEELMAKING CAPACITY INSTALLED IN 1950

Reported by Companies and Location With Description of Facilities and Capacity

Openhearth Furnaces Company	Number of Furnaces	Rated Capacity per Heat (N.T.)	Annual Capacity Increase (N.T.)	Location	Furnace Builder	Operation Started	Remarks
U. S. Steel Corp.	57	162	610,000	Pittsbgh. Dist.	—	1950	Furnaces enlarged, improved facilities added, existing facilities altered and rearranged.
U. S. Steel Corp.	31	186	190,000	Chicago Dist.	—	1950	Addition of improved facilities, alteration and enlargement of existing facilities.
Armco Steel Co.	3	250	400,000	Middletown, O.	Loftus	Oct.	New furnaces
Colorado Fuel & Iron Corp.	16	—	48,000	Pueblo, Colo.	—	1950	Change in design of furnaces
Colorado Fuel & Iron Corp.	4	—	40,000	Buffalo, N. Y.	—	1950	Change in design of furnaces
Keystone Steel & Wire Co.	—	—	22,000	Peoria, Ill.	—	1950	Change in method of operation
Wheeling Steel Corp.	—	—	144,000	Wheeling, W. Va.	—	1950	Technological improvements, increased use of hot metal
Inland Steel Co.	38	—	350,000	Indiana Harbor	—	1950	Changes to accommodate larger cranes and ladles; technological improvements
Armco Steel Corp.	1	—	47,000	Ashland, Ky.	—	1950	Furnace modernized
Armco Steel Corp.	1	—	72,000	Houston, Tex.	—	1950	Furnace modernized.
Total openhearth furnaces			1,923,000				
Electric Furnaces							
Bethlehem Steel Co.	1	75	132,000	Los Angeles	Lectromelt	April	New furnace
Armco Steel Corp.	1	—	6,000	Butler, Pa.	—	1950	Furnace modernized
Armco Steel Corp.	1	—	12,000	Middletown, O.	—	1950	Furnace modernized
Allegheny Ludlum Steel Corp.	1	60	72,000	Brackenridge, Pa.	Swindell	May	New furnace.
Total Electric Furnaces			222,000				
Grand Total			2,145,000				

IRON AND STEEL EXPORTS—1937 TO 1950

Including Semi-Finished and Finished Products, In Net Tons

	1950*	1949	1948	1947	1946	1940	1939	1938	1937
Ingots, blooms, billets, slabs, sheet bars	33,982	257,156	219,340	491,214	452,533	2,822,428	241,671	187,758	379,380
Wire rods	5,453	53,312	38,142	71,237	62,857	320,981	35,224	24,957	67,209
Skelp	73,455	117,366	57,920	67,403	56,569	167,309	91,461	66,849	85,555
Iron bars	567	1,469	3,658	34,752	25,575	16,190	970	1,467	3,496
Concrete reinforcement bars	11,753	107,902	130,298	248,373	194,652	155,172	52,926	29,237	20,048
Steel bars, cold finished	10,326	37,923	46,496	106,270	88,152	74,602	12,747	7,225	
Other steel bars (excluding alloy)	43,343	273,923	309,475	535,370	339,905	524,211	150,247	121,823	148,419
Alloy steel bars	4,155	20,540	53,006	208,113	50,978	49,370	18,707	9,178	7,415
Welding rods, electric	7,739	15,945	15,834	14,842	9,470	4,800	1,795	1,324	
Boiler plate	74,572	417,092	28,877	32,558	61,706	12,510	10,391	7,564	11,704
Other plates, not fab.			318,820	530,309	470,263	631,239	274,176	240,077	421,533
Plates, fab., punched or shaped	5,378	30,326	23,550	37,230	34,857	30,818	7,505	2,629	28,247
Iron sheets, black	11,289	22,651	17,773	30,215	31,179	29,622	11,702	8,474	12,082
Steel sheets, black	317,319	551,243	416,481	568,964	482,785	533,882	301,308	229,912	320,891
Galvanized sheets	69,821	85,594	62,782	74,552	77,747	184,370	124,284	85,161	90,741
Strip steel, cold rolled	28,687	57,378	59,483	89,617	64,626	72,804	29,392	28,575	40,582
Strip steel, hot rolled	32,036	82,367	69,094	107,147	84,376	150,558	70,235	41,486	83,900
Tin plate and tagger's tin	356,336	594,635	604,739	609,423	377,946	422,484	342,188	176,044	398,192
Terne plate (incl. long ternes)	5,402	10,427	9,046	12,851	20,503	6,846	6,149	4,921	5,771
Structural shapes, plain	128,848	408,702	292,176	463,651	319,102	458,015	129,321	93,734	151,961
Structural shapes, fab.	80,323	157,999	161,174	248,130	99,477	80,960	41,612	42,624	43,824
Frames and sashes	978	2,751	3,164	3,546	1,714	2,265	1,329	1,584	1,922
Sheet piling	7,428	19,751	34,523	34,163	25,641	13,506	8,615	3,913	8,374
Rails, 60 lbs. per yard and over	73,050	195,552	265,820	353,444	286,760	227,645	39,878	51,429	123,916
Rails, less than 60 lbs. per yard	10,489	7,875	9,719	59,286	38,455	41,487	7,364	4,917	11,341
Rails, relaying	23,819	33,563	32,837	87,855	60,368	19,888	18,941	36,301	30,707
Splice bars and tie plates	15,915	19,796	49,356	119,411	53,072	11,595	9,872	8,224	18,332
Frogs and switches	1,612	6,043	5,467	7,190	6,763	3,268	2,250	1,843	2,882
Railroad spikes	6,578	3,635	9,268	23,459	12,045	5,618	3,935	2,918	3,442
Railroad bolts, nuts, and washers	1,138	1,994	7,666	7,759	8,470	3,724	2,184	1,384	1,248
Car wheels, tires and axles	20,449	62,062	38,714	88,801	68,371	21,483	31,225	23,450	31,110
Seamless black pipe	12,578	25,962	21,692	18,717	14,870	34,027	11,445	8,354	13,903
Seamless casing and oil line pipe	112,581	268,276	227,524	243,038	123,757	165,584	87,501	56,092	84,031
Seamless boiler tubes	8,083	42,186	36,700	62,636	41,767	27,800	15,940	8,764	18,788
Welded black pipe	42,346	101,759	61,560	90,995	85,278	57,968	26,832	15,433	29,979
Welded galvanized pipe	50,018	98,531	41,760	70,219	61,062	71,827	37,405	19,492	23,025
Welded casing and oil line pipe	237,999	224,650	144,390	90,482	56,024	36,589	10,952	15,255	9,467
Welded boiler tubes	1,710	4,882	1,755	7,315	2,798	3,317	1,050	335	765
Other pipe and fittings	47,556	132,872	68,938	101,850	72,984	19,263	8,483	1,058	1,098
Plain wire	16,267	73,827	76,828	83,348	52,575	98,112	36,103	26,970	37,119
Galvanized wire	7,575	56,902	50,314	101,026	65,221	74,011	31,651	28,887	28,713
Barbed wire	6,534	75,735	39,789	78,882	46,803	49,510	59,721	38,015	37,894
Woven wire fencing	3,721	16,324	11,620	12,371	9,739	5,302	3,774	2,480	3,540
Woven wire screen cloth	1,436	4,296	5,737	5,985	3,523	3,751	2,154	1,486	1,776
Wire rope and strand	7,752	12,915	13,643	30,829	33,710	14,963	6,785	4,897	8,763
Wire nails	2,012	25,909	19,662	28,755	19,102	54,478	28,892	23,207	19,467
Other wire and manufactures	8,061	20,237	41,517	52,600	26,098	16,699	11,532	7,013	9,803
Horseshoe nails			428	1,025	2,080	1,650	1,043	995	1,092
Tacks	793	1,681	3,537	1,960	1,757	982	434	294	456
Other nails, incl. staples	1,764	9,889	10,949	13,010	7,782	6,150	5,756	4,576	3,473
Bolts, nuts, rivets and washers, except railroad	10,281	26,128	54,311	48,234	31,622	37,387	9,919	9,024	12,506
Forgings	10,569	23,747	27,063	35,818	19,358	35,952	18,595	10,183	11,332
Horseshoes	255	418	582	897	1,859	400	251	115	291
Castings other than car wheels, tires and axles	30,176	50,112							
Grand Total	2,083,838	4,957,097	4,354,998	6,543,085	4,747,397	7,914,352	2,493,822	1,829,907	4,593,735

* 8 months.

Source: Office of International Trade

IRON AND STEEL IMPORTS—1937 TO 1950

Including Semi-Finished and Finished Products, In Net Tons

	1950*	1949	1948	1947	1946	1940	1939	1938	1937
Steel ingots, blooms, etc.	77,775	52,312	23,284	1,516	1,193	493	845	857	2,490
Wire rods	65,270	5,733	6,613	6,016	6,053	4,464	11,981	5,918	17,735
Iron bars and slabs	305	353	190	249	404	222	1,042	564	2,182
Concrete reinforcement bars	29,142	10,289	790	2	1	9	2,648	1,714	4,381
Hollow bar and drill steel	446	92	63	111	146	976	1,571	969	2,841
Other steel bars	55,610	35,267	5,018	686	873	2,075	19,137	21,182	49,590
Boiler and other plate	20,700	30,519	30,316	664	2,048	17	31	398	239
Sheets, skelp, sawplates, n. e. s.	11,709	12,836	3,918	1,179	206	137	1,576	6,772	9,957
Tin plate, tagger's tin and terne plate	1,074	13,683	206	655	334	154	111	122	276
Other hoops and bands	15,215	5,671	2,803	35	53	795	26,484	29,267	30,496
Structural shapes and sheet piling	79,368	119,501	65,811	1,730	757	960	44,276	44,379	87,686
Rails and fastenings	1,985	1,103	6,784	10,257	7,997	1,780	8,719	4,069	9,294
Wheels and axles	44	88	38	76	243				
Pipe and tubes	828	5,712	2,545	6,778	206	3,446	34,297	32,629	47,701
Round wire	8,062	2,307	23	97	206	995	2,814	1,886	5,452
Barbed wire	4,174	99				96	17,079	14,031	18,666
Flat wire and strip	2,028	1,574	2,122	2,171	3,03	2,481	3,534	3,020	4,518
Telegraph and telephone wire	14	455	2	242	6	1	9	30	38
Wire rope and strand	1,222	890	280	312	295	586	1,864	2,263	3,974
Miscellaneous wire	12,644	2,964		3	9	1	1,659	1,634	3,841
Nails, tacks and staples	33,266	2,383	2,019	116	183	125	8,187	8,510	10,836
Bolts, nuts and rivets	249	96	312	134	74	147	132	241	669
Castings and forgings	231	106	613	1,182	805	685	1,287	4,286	5,181
Die blocks and blanks	118	660	48	239	285	13	100	106	114
Total	421,469	304,673	153,788	34,430	25,410	20,473	189,805	185,321	324,27

* 8 Months.

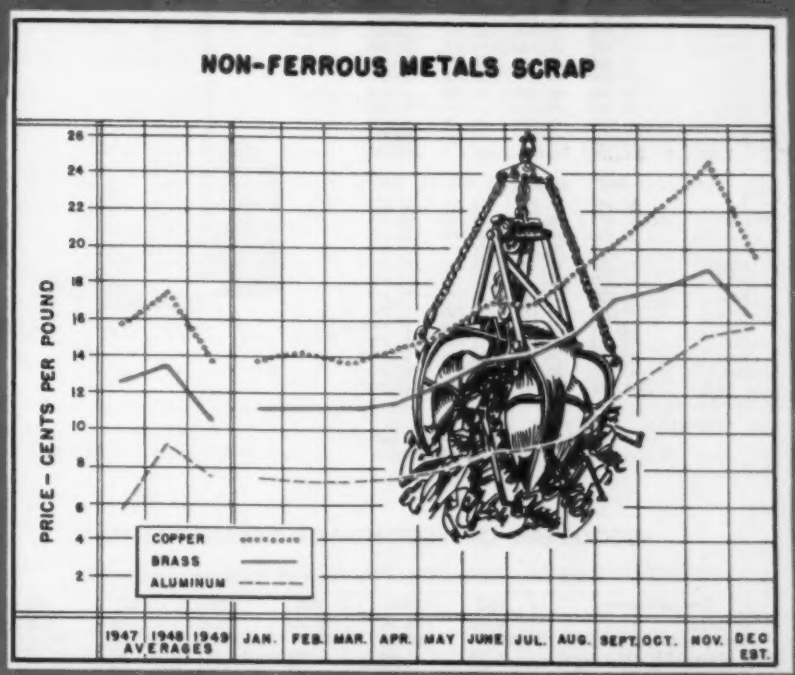
Source: Office of International Trade

THE IRON AGE

SECTION 2

METAL INDUSTRY FACTS

Nonferrous Metals Production, Prices Markets



IN THIS SECTION:

ALUMINUM

	Page
Bauxite imports	301
Exports	300
Imports	300
Prices	300, 301
Production	300, 301
Recovery of secondary	300
Scrap	300
Shipments	300, 301

ANTIMONY 303, 304

BRASS 303

BRONZE 303

CADMIUM 306, 307

COBALT 305

CONSUMPTION

Cobalt	305
Copper, refined	302
Magnesium	306
Nickel	304
Zinc, slab	304

COPPER

Consumption	302
Exports	302
Imports	302
Prices	302
Production	301, 302
Recovery of secondary	302

EMPLOYMENT

Hours, earnings, rates	308

EXPORTS

Aluminum	300
Cadmium	307
Copper	302
Zinc	307

IMPORTS

Aluminum	300
Antimony	303
Bauxite	301
Cadmium	307
Copper	302
Nickel	304
Zinc	306

INGOT PRICES

Aluminum, remelt	300
Brass (88-10-2)	303
Bronze (85-5-5-5)	303

LEAD 305, 308

MAGNESIUM 306, 307

MERCURY 308

MOLYBDENUM 308

NICKEL 304

PRICES

Aluminum	300, 301
Antimony	304
Brass	303
Bronze Ingots (88-10-2)	303
Cadmium, sticks, bars	307
Cobalt, 97 to 99 pct	305
Copper	302
Lead, common grade	305
Magnesium, 99.8 pct plus	307
Nickel, electrolytic	304
Tin, Straits	305
Zinc, prime western	307

PRODUCTION

Aluminum	300, 301
Antimony	303, 304
Cadmium	307
Cobalt	305
Copper	301, 302
Magnesium	306
Mercury	308
Molybdenum	308
Nickel	304
Vanadium	308

SCRAP PRICES

Aluminum, cast	300
Brass, No. 1 Comp.	303
Copper, No. 1 Heavy	302

SHIPMENTS

Aluminum	300, 301
Brass ingots	303
Bronze ingots	303

TIN 305

VANADIUM 308

ZINC 306, 307

2 METAL FACTS SECTION

U. S. Aluminum Production, Primary and Secondary; Aluminum Imports and Exports; Shipments of Wrought Aluminum and Aluminum Castings; Scrap and Secondary Aluminum Prices.

U. S. ALUMINUM PRODUCTION

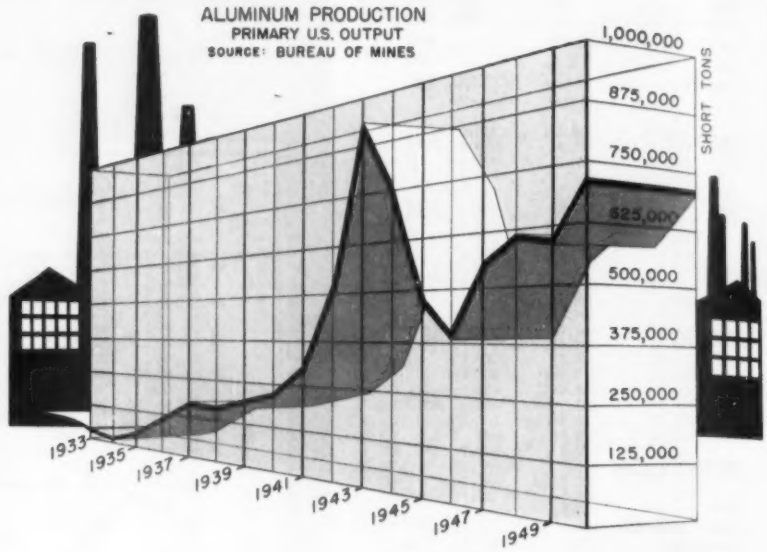
Short Tons, Primary Metal Only

	1943	1944	1945	1946
Jan.	60,650	84,750	48,650	24,750
Feb.	55,600	74,400	45,650	22,250
March	64,600	80,200	53,100	26,000
April	66,800	77,800	51,600	25,900
May	72,850	78,450	52,000	24,850
June	74,150	66,400	47,500	27,800
July	78,450	67,550	47,900	35,750
Aug.	81,350	61,650	45,800	39,850
Sept.	86,400	47,450	31,600	41,100
Oct.	94,050	48,400	25,000	45,000
Nov.	91,350	44,450	20,800	46,300
Dec.	93,600	46,850	24,000	50,700
Total	920,179	776,446	495,060	409,630

	1947	1948	1949	1950
Jan.	50,045	48,767	53,356	52,023
Feb.	47,002	45,699	49,749	50,668
March	53,032	51,874	54,852	58,747
April	51,007	53,277	54,076	58,024
May	51,116	55,450	56,909	61,929
June	46,259	48,557	54,184	60,400
July	47,998	52,937	55,777	63,518
Aug.	47,054	54,953	52,005	63,006
Sept.	43,228	53,255	49,742	58,540
Oct.	43,959	54,526	45,790	62,916
Nov.	43,461	50,714	35,865	63,000*
Dec.	47,589	53,474	41,161	64,000*
Total	571,750	623,483	603,462	718,000*

* Estimate

Source: U. S. Bureau of Mines and Aluminum Association



RECOVERY OF SECONDARY ALUMINUM IN U. S.

Short Tons, Broken Down by Form of Recovery, Since 1943.

Form of Recovery	1943	1944	1945	1946	1947	1948	1949
As Metal	5,926	2,336	2,145	2,078	5,105	2,384	343
Aluminum Alloys	305,357	320,040	293,967	274,068	338,200	282,302	178,502
In Brass and Bronze	1,279	1,466	1,162	587	307	455	450
In Zinc-Base Alloys	219	187	267	504	624	776	600
In Magnesium Alloys	.....	.....	.....	266	222	354	426
In Chemical Compounds	1,180	1,616	846	563	379	506	441
	313,961	325,645	298,387	278,073	344,837	286,777	180,762

Source: U. S. Bureau of Mines

U. S. ALUMINUM IMPORTS

Short Tons, Imports for Consumption

	Semi-Finished Products†	Metal, Alloys Crude	Scrap
1934	110	9,186	
1935	108	10,538	
1936	202	12,579	
1937	238	22,351	
1938	114	8,758	
1939	306	8,984	6,048
1940	562	17,435	648
1941	528	12,830	65
1942	5,855	106,257	24
1943	76	135,505	241
1944	654	100,315	1,794
1945	1,688	332,437	5,188
1946	1,120	41,487	14,493
1947	31	15,579	15,719
1948	5,912	83,277	77,798
1949	7,863	77,342	40,126
1950:			
Jan.	476	10,809	6,321
Feb.	358	12,529	3,858
March	288	17,652	4,883
April	99	17,117	2,799
May	443	14,921	6,456
June	231	11,741	8,122
July	621	20,352	4,492
1950:			
First 7 Months	2,516	105,121	36,951

† Plates, sheets, bars, etc.

Source: U. S. Bureau of Mines

ALUMINUM CASTINGS

Short Tons of Shipments, Since 1942

	Total	Sand	Permanent Mold	Die	Others
1942	162,050	.....	.....	.....	.....
1943	230,250	.....	.....	.....	.....
1944	257,450	.....	.....	.....	.....
1945	186,950	.....	.....	.....	.....
1946	194,356	80,423	75,369	36,851	513
1947	220,998	77,556	87,258	55,269	916
1948	212,245	69,891	80,667	59,369	2,319
1949	304,616	106,825	102,908	88,019	6,864
1950	270,524*	91,876*	86,751*	85,690*	6,207*

* First 8 Months

Source: U. S. Bureau of the Census

ALUMINUM WROUGHT PRODUCTS

Short Tons of Shipments Since 1942

	Total	Plate, Sheet and Strip	Rolled Structurals, Rod, Bar, Wire	Extruded Shapes, Tubing and Blooms	Powder, Flake, Paste
1942	.....	270,200	.....	.....	.....
1943	.....	420,500	.....	.....	.....
1944	.....	448,900	.....	.....	.....
1945	.....	369,300	.....	.....	.....
1946	570,425	433,491	65,319	63,039	8,576
1947	704,076	555,580	78,690	61,524	8,283
1948	820,103	634,149	91,496	85,982	8,477
1949	579,073	395,013	101,825	74,998	7,238
1950†	693,149	470,462	109,392	104,325	8,971

† 10 month total.

Source: U. S. Bureau the of Census

U. S. ALUMINUM EXPORTS

Short Tons, by Form, Since 1934

	Semi-Finished Products†	Manufactured Products*	Ingots, Slabs Crude	Scrap
1934	102	257	4,026	
1935	310	475	1,681	
1936	326	728	477	
1937	332	1,047	2,360	
1938	1,474	738	4,835	
1939	8,488	1,610	28,121	476
1940	14,659	3,497	12,227	955
1941	6,655	1,178	750	57
1942	20,913	4,979	17,834	32
1943	60,851	7,533	56,741	14
1944	55,019	19,326	133,089	413
1945	3,532	6,512	2,209	802
1946	15,587	5,427	1,107	640
1947	50,235	10,204	12,098	788
1948	47,869	7,199	1,239	438
1949	28,764	4,932	8,018	397

† Plates, sheet, bars, etc.

* Includes only tubes, moldings, foil and leaf, table, kitchen and hospital utensils, powders and pastes up to 1948. In 1949, wire and manufactures, and materials for construction were also included.

Source: U. S. Bureau of Mines

ALUMINUM SCRAP, CAST

Cents Per Pound, f.o.b. New York*

	1947	1948	1949	1950
Jan.	7.35	6.15	12.00	7.38
Feb.	6.70	6.75	10.25	7.25
March	6.50	6.75	8.10	7.25
April	6.47	7.05	6.72	7.38
May	6.30	8.25	6.25	7.88
June	5.63	9.00	5.65	8.65
July	5.25	10.65	5.38	8.75
Aug.	5.25	11.00	6.25	9.88
Sept.	5.25	9.85	7.30	12.00
Oct.	5.25	9.88	7.50	13.88
Nov.	5.38	11.88	8.00	15.15
Dec.	5.75	12.55	7.75	15.75†
Average	5.92	9.15	7.60	10.10†

* Dealers' Buying Price

† Estimate

REMELT ALUMINUM INGOT

No. 12, Cents Per Pound, Cars*

	1947	1948	1949	1950
Jan.	16.47	15.60	25.50	16.50
Feb.	16.31	16.31	23.53	16.50
March	15.62	16.50	20.25	16.30
April	14.88	16.92	17.59	16.06
May	14.40	19.00	16.50	16.75
June	13.81	19.81	15.04	17.73
July	13.25	23.67	14.63	18.13
Aug.	13.50	23.75	15.38	21.85
Sept.	13.63	23.60	15.75	26.25
Oct.	13.75	23.63	15.75	27.06
Nov.	14.28	25.84	16.13	30.175
Dec.	15.34	26.50	16.50	31.00†
Average	14.60	20.93	17.71	21.19†

* Delivered

† Estimate

World Production of Aluminum and Copper; Shipments of Aluminum Extrusions; Bauxite Imports; Primary Aluminum Prices.

METAL FACTS SECTION 2

WORLD PRODUCTION OF ALUMINUM SINCE 1941

Short Tons, Not Including Russian Production and the Small Output in Brazil.

Country	1941	1942	1943	1944	1945	1946	1947	1948	1949
United States	309,067	521,106	920,179	776,448	495,060	409,630	571,750	‡823,456	603,462
Canada	213,873	340,596	495,750	462,065	215,713	193,400	297,838	‡367,079	366,850
Total America	522,940	861,702	1,415,929	1,238,511	710,773	603,030	869,588	‡990,535	970,312
Austria	23,606	40,561	50,700	57,430	5,787	1,136	4,786	14,723	16,309
France	70,437	49,824	51,257	28,825	41,033	52,729	58,870	71,418	59,679
Germany	233,981	250,367	223,842	210,539	*22,000	.....	.....	(c)8,053	31,797
Great Britain	25,385	52,387	62,341	39,724	35,722	35,329	32,467	33,629	33,986
Italy	53,125	50,044	50,926	18,514	4,792	12,169	27,828	36,466	28,271
Hungary	5,489	6,570	10,428	10,880	*6,000	2,172	*3,000	5,679	.....
Norway	19,321	22,595	25,919	22,065	5,079	18,400	23,947	‡34,216	39,392
Spain	1,234	818	879	227	653	1,110	1,065	‡577	728
Sweden	1,206	1,426	3,937	4,104	3,567	3,931	3,188	‡3,707	*4,400
Switzerland	26,676	26,455	*22,000	*8,000	*5,500	15,400	19,800	‡20,994	23,148
Total Europe (a)	460,460	501,047	502,229	400,328	129,133	142,378	174,491	‡229,462	237,710
Others (c):									
Taiwan Province, China	13,452	13,315	11,777	8,807	653	.....	.....	.....	.....
India	.....	.....	1,402	1,899	2,485	3,576	3,553	3,771	3,911
Japan	55,556	83,069	119,062	120,728	18,135	3,519	2,978	7,672	23,389
Korea	3,439	4,813	13,811	14,267	.....	.....	.....	.....	.....
Manchuria (b)	8,853	8,198	9,432	8,500	.....	.....	.....	.....	.....

(a) Excluding Yugoslavia. (b) Fiscal year beginning April 1. (c) Practically all by the Toeging works in American Zone.

* Estimated.

‡ Revised.

Source: American Bureau of Metal Statistics

ALUMINUM 99 PCT PLUS

Cents Per Pound, Freight Allowed

	1929	1934	1936	1937	1938	1939
Jan.	23.90	23.30	20.50	20.50	20.00	20.00
Feb.	23.90	21.65	20.50	20.50	20.00	20.00
March	23.90	21.65	20.50	20.00	20.00	20.00
April	23.90	21.65	20.50	20.00	20.00	20.00
May	23.90	21.65	20.50	20.00	20.00	20.00
June	23.90	21.65	20.50	20.00	20.00	20.00
July	23.90	21.65	20.50	20.00	20.00	20.00
Aug.	23.90	21.65	20.50	20.00	20.00	20.00
Sept.	23.90	21.65	20.50	20.00	20.00	20.00
Oct.	23.90	21.49	20.50	20.00	20.00	20.00
Nov.	23.90	20.50	20.50	20.00	20.00	20.00
Dec.	23.90	20.50	20.50	20.00	20.00	20.00
Average	23.90	21.58	20.50	20.00	20.00	20.00

	1940	1941		1948	1949	1950
Jan.	20.00	17.00		15.00	17.00	17.00
Feb.	20.00	17.00	1947	15.00	17.00	17.00
March	20.00	17.00	1948	15.00	17.00	17.00
April	19.00	17.00	1945	15.00	17.00	17.00
May	19.00	17.00	1944	15.00	17.00	17.20
June	19.00	17.00	1943	15.00	17.00	17.50
			1942			
July	19.00	17.00	price	16.00	17.00	17.50
Aug.	18.00	17.00	fixed	16.00	17.00	17.50
Sept.	18.00	17.00	at	16.00	17.00	17.69
Oct.	18.00	15.00	15.00	16.70	17.00	19.00
Nov.	17.50	15.00		17.00	17.00	19.00
Dec.	17.00	15.00		17.00	17.00	19.00
Average	18.71	16.50		15.66	17.00	17.70

U. S. BAUXITE IMPORTS

Long Tons, By Country of Origin

	Total	Surinam	British Guiana	Indonesia
1943	1,547,854	.....	.....	.....
1944	560,401	518,208	42,253	.....
1945	739,581	713,854	25,727	.....
1946	852,005	802,288	40,595	.....
1947	1,821,580	1,660,823	108,562	52,195
1948	2,448,915	2,051,265	114,764	302,079
1949	2,688,164	2,013,187	99,821	575,137
1950:				
Jan.	232,813	190,291	7,220	35,302
Feb.	142,324	110,475	8,805	23,044
Mar.	253,181	185,207	2,750	55,895
Apr.	248,354	145,194	13,139	85,674
May	225,388	137,064	7,470	80,854
June	167,154	138,061	10,893	18,200
July	182,954	148,891	11,801	22,262

Source: U. S. Department of Commerce

ALUMINUM EXTRUSIONS

Pounds Shipped, With Tubes, Blooms

	1948	1949	1950
Jan.	12,565,000	14,237,000	15,686,000
Feb.	14,323,000	13,828,000	15,513,000
March	16,032,000	15,745,000	19,523,000
April	16,110,000	13,692,000	18,494,000
May	15,566,000	12,055,000	20,255,000
June	16,850,000	11,246,000	22,081,000
July	14,833,000	9,525,000	20,176,000
Aug.	14,552,000	9,805,000	25,244,000
Sept.	11,224,000	10,516,000	25,600,000
Oct.	12,159,000	11,846,000	26,077,000
Nov.	13,682,000	13,056,000	.....
Dec.	14,068,000	14,444,000	.....
Total	171,964,000	149,995,000	*208,649,000

* Ten months.

Source: Bureau of Census

WORLD PRODUCTION OF COPPER FROM ORES

Short Tons, Not Including Copper Derived From Scrap. Russia Not Included.

Country	1941	1942	1943	1944	1945	1946	1947	1948	1949
United States	983,103	1,097,175	1,114,149	1,006,653	805,174	603,888	874,105	855,198	761,904
Mexico	56,911	56,907	50,642	47,589	67,784	64,693	72,675	63,928	70,662
Canada	321,658	301,831	287,595	273,535	237,457	183,968	225,861	240,732*	259,512
Cuba	8,212	11,023	8,075	6,256	9,053	12,340	14,600	16,800	15,990
Newfoundland	5,500	6,500	6,200	5,500	5,200	4,900	4,250	4,550	3,479
Bolivia	8,018	7,026	6,626	6,900	6,721	6,754	6,879	7,293	5,593
Chile	516,633	533,902	548,013	549,517	518,304	397,972	470,318	490,467	409,055
Peru	40,589	38,935	36,825	35,703	35,181	27,108	24,793	19,917	30,819
Ecuador	3,250	3,000	3,000	4,065	4,216	2,886	158	450	713
Total America	1,943,874	2,056,301	2,061,125	1,935,618	1,689,090	1,304,489	1,693,639	1,699,335*	1,557,727
Austria	816	1,082	1,505	1,653	353	138	288	1,082	1,429
Finland	18,213	17,221	17,073	17,462	16,510	19,400	19,200	25,713	26,811
Germany	25,059	25,240	25,766	23,148	.....	(e)516	(e)263	(e)401	962
Italy	4,000	4,500	(b)2,800	400	2,400	.....	.....	99	33
Norway	19,828	17,054	17,900	15,900	5,735	13,500	16,212	16,658*	17,637
Spain	10,200	11,800	12,200	12,100	9,100	13,400	11,900	6,066	7,388
Sweden	14,760	19,903	19,656	17,770	16,453	16,934	14,489	16,333*	17,938
Yugoslavia	25,400	35,300	29,800	25,000	.....	.....	.....	.....	.....
Total Europe	118,276	132,100	126,700	113,433	50,551(a)	83,488(a)	82,349(a)	86,372(a)*	92,198(a)
Formosa	6,196	5,585	6,826	4,393	.....	.....	.....	.....	.....
Japan	84,921	91,561	104,419	95,728	30,847	18,889	24,127	28,353	36,090
India (c)	6,741	6,579	6,832	6,418	6,720	7,068	6,643	6,567	7,157
Turkey	11,585	9,103	10,725	12,078	10,80^	10,979	11,111	12,102	12,010
Philippines	7,800	(d)	(d)	(d)	(d)	.....	.....	2,300	7,712
Cyprus	.....	.....	5,706	1,695	1,100	2,950	17,400	21,500	30,912
Total Asia	117,243	112,828	134,318	120,310	49,467(a)	39,886(a)	59,281(a)	70,822(a)	93,881(a)
Belgian Congo	178,757	182,916	172,896	182,413	178,600	158,804	166,271	171,424*	155,864
Rhodesia	258,417	279,858	276,955	246,498	215,572	204,922	218,222	234,647	289,946
Southwest Africa	.....	.....	.....	.....	.....	.....	4,575	6,616	9,514
Union of South Africa	22,200	28,200	25,100	25,935	27,211	30,000	32,400	32,300	33,060
Total Africa	459,374	490,975	474,951	454,846	419,383	393,526	421,468	444,987*	488,384
Australia	23,000	22,500	27,300	31,500	27,500	19,886	14,698	13,852	12,052
Total World, as Reported	2,661,767	2,814,704	2,824,394	2,655,707	2,227,991a	1,841,275a	2,271,435a	2315338a*	2,244,242a

(a) Total based on incomplete returns. (b) January-June. (c) Including Burma through 1940. (d) Production of ores and concentrates (copper content) in Philippines during 1942-45 has been reported as about 14,500 short tons. (e) The production of Germany beginning 1946 is that of the British zone. Production in the Russian zone, in which are situated the Mansfeld mines, has been given as 19,600 short tons in 1945, and 9,500 tons in January-June, 1947.

In this table, which surveys mine production, the credits to the several countries are for copper smelted domestically plus copper in ores from them smelted in other countries; or copper content of ores and concentrates produced in countries which do no smelting.

Source: American Bureau of Metal Statistics

2 METAL FACTS SECTION

Copper Production, Recovery, Consumption, Imports and Exports; Copper Scrap and Electrolytic Copper Prices.

DOMESTIC COPPER MINE PRODUCTION, MONTHLY

Short Tons, Based On Smelter Receipts of 1944; Actual Mine Output Since 1944

Month	1943	1944	1945	1946	1947	1948	1949	1950
Jan.	91,729	88,820	70,088	55,381	70,056	73,150	80,002	71,464
Feb.	85,367	87,622	63,962	41,934	68,416	68,943	56,410	67,296
Mar.	93,479	94,446	70,004	42,018	74,651	74,092	77,912	76,083
Apr.	91,420	88,106	67,493	32,295	72,418	74,344	72,843	73,351
May	94,919	88,055	72,018	33,526	75,164	74,779	67,412	74,522
June	89,826	83,480	67,910	33,171	70,150	75,596	61,284	74,860
July	88,352	76,172	62,100	53,948	73,310	71,340	56,615	72,525
Aug.	87,510	77,390	61,817	57,163	72,005	73,546	55,898	80,199
Sept.	90,398	74,846	59,854	62,667	70,770	69,630	58,111	76,645
Oct.	94,821	73,045	61,555	65,625	66,145	68,256	60,515	.....
Nov.	99,942	68,909	58,664	62,336	63,278	51,318	66,044	.....
Dec.	92,055	71,658	57,429	68,673	71,200	50,668	69,734	.....
Total	1,090,818	972,549	772,894	606,737	847,563	825,666	752,750	666,945*

* First 9 Months.

Source: U. S. Bureau of Mines

CRUDE COPPER PRODUCTION

Short Tons, From Domestic Ores**

1845 to 1880	10,111*	1939	712,875
1881 to 1900	149,738*	1940	909,094
1901 to 1910	428,172*	1941	966,072
1911 to 1920	716,056*	1942	1,087,991
1921 to 1930	742,340*	1943	1,092,939
1931	521,356	1944	1,003,379
1932	272,005	1945	782,726
1933	225,000	1946	599,656
1934	244,227	1947	862,872
1935	381,294	1948	842,447
1936	611,410	1949	772,986
1937	834,661	1950†	689,137
1938	562,328		

* Yearly averages. † Nine Months.

** Smelter Output.

Source: Bureau of Mines

SECONDARY COPPER RECOVERY

Net Tons, Showing Form of Recovery

Form of Recovery	1944	1945	1946
As unalloyed copper:			
At primary plants	86,398	96,662	105,572
At other plants	15,737	16,194	31,337
	102,135	112,856	136,909
In brass and bronze	814,898	860,287	630,588
In alloy iron and steel	2,454	2,133	1,932
In aluminum alloys	17,054	12,055	14,434
In other alloys	1,044	519	491
In chemical compounds	13,357	18,666	19,192
	848,807	893,660	666,637
	950,942	1,006,516	803,546

Form of Recovery	1947	1948	1949
As unalloyed copper:			
At primary plants	269,085	245,376	212,392
At other plants	34,007	38,650	37,697
	303,092	284,026	250,089
In brass and bronze	619,578	653,281	436,457
In alloy iron and steel	2,830	2,911	1,552
In aluminum alloys	16,962	14,678	9,951
In other alloys	443	280	254
In chemical compounds	18,838	17,612	14,840
	658,649	688,762	463,054
	961,741	972,788	713,143

Source: Bureau of Mines

For data on government controls, defense plant loans and accelerated amortization, see "You and Government Controls," beginning on p. 365.

REFINED COPPER CONSUMPTION

Primary and Secondary, Short Tons

	1948	1949
Cathodes	85,725	66,119
Wire bars	806,073	668,591
Ingots and ingot bars	140,875	89,777
Cakes and slabs	210,170	183,359
Billets	170,413	109,786
Other	7,328	165
	1,420,584	1,097,797

Source: U. S. Bureau of Mines

U. S. COPPER IMPORTS

Net Tons, Except Manufactures

1929	267,156	1940	491,342
1930	408,577	1941	735,545
1931	262,946	1942	757,974
1932	195,996	1943	716,596
1933	148,717	1944	785,211
1934	213,285	1945	853,196
1935	257,182	1946	393,275
1936	190,339	1947	413,880
1937	279,875	1948	507,251
1938	252,184	1949	552,704
1939	336,297	1950	512,515*

Imports for consumption plus entries under bond.

* First 9 Months.

Source: Bureau of Mines, Dept. of Commerce, and American Bureau of Metal Statistics

No. 1 HEAVY COPPER SCRAP

Cents Per Pound, f.o.b. New York*

	1947	1948	1949	1950
Jan.	15.50	16.85	18.75	13.97
Feb.	15.88	16.44	18.13	14.06
March	16.50	16.25	16.66	13.88
April	17.00	16.60	14.13	14.19
May	16.30	16.75	11.97	15.13
June	14.50	16.75	10.60	16.98
July	14.65	17.00	11.88	16.94
Aug.	15.88	17.88	12.31	18.66
Sept.	15.75	17.65	12.93	20.38
Oct.	15.75	17.72	12.25	22.25
Nov.	15.88	18.47	12.44	24.75
Dec.	16.50	19.25	13.26	19.75†
Average	15.84	17.30	13.78	17.58†

* Dealers Buying Price.

† Estimate.

U. S. REFINED COPPER EXPORTS

Net Tons, With Primary Manufactures

1929	496,448	1940	427,650
1930	378,557	1941	158,893
1931	278,787	1942	212,309
1932	147,678	1943	294,459
1933	151,913	1944	237,515
1934	296,359	1945	132,555
1935	295,198	1946	97,475
1936	259,032	1947	196,999
1937	345,594	1948	206,567
1938	421,012	1949	195,990
1939	427,517	1950	144,581*

* First 9 Months.

Source: Bureau of Mines, Dept. of Commerce, and American Bureau of Metal Statistics

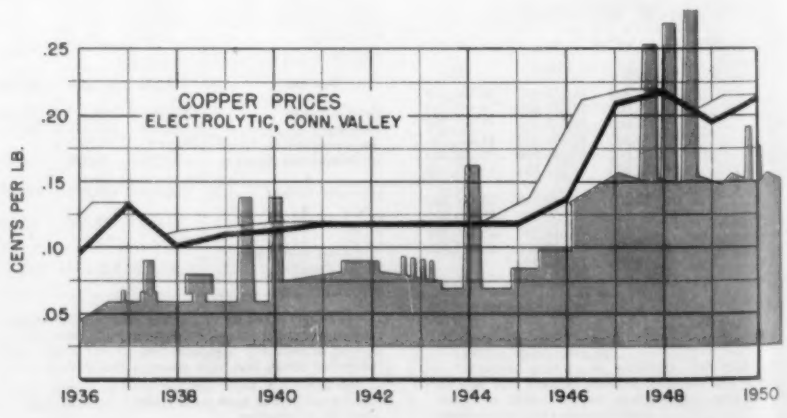
ELECTROLYTIC COPPER

Cents Per Pound, Conn. Valley

	1929	1934	1935	1938	1939	1940
Jan.	16.84	8.18	9.25	10.42	11.25	12.22
Feb.	18.05	8.00	9.25	10.00	11.25	11.40
March	21.38	8.00	9.25	10.00	11.25	11.38
April	19.93	8.39	9.40	10.00	10.47	11.33
May	18.00	8.50	9.50	9.60	10.06	11.32
June	18.00	8.82	9.50	9.00	10.00	11.37
July	18.00	9.00	9.60	9.81	10.22	10.81
Aug.	18.00	9.00	9.75	10.12	10.49	10.95
Sept.	18.03	9.00	9.75	10.25	11.93	11.54
Oct.	18.00	9.00	9.85	10.98	12.44	12.00
Nov.	18.00	9.00	10.43	11.25	12.50	12.00
Dec.	18.00	9.00	11.00	11.25	12.50	12.00
Average	18.35	8.66	9.71	10.22	11.20	11.53

	1946	1947	1948	1949	1950
Jan.		12.00	19.56	21.50	23.50	18.50
Feb.		12.00	19.75	21.50	23.50	18.50
March	1945	12.00	21.50	21.50	23.49	18.50
April	1944	12.00	21.50	21.50	21.72	18.94
May	1943	12.00	22.63	21.50	18.05	19.92
June	1942	14.28	21.63	21.50	16.66	22.27
	1941					
July	price	14.375	21.50	21.50	17.33	22.50
Aug.	fixed	14.375	21.50	23.43	17.63	22.54
Sept.	at	14.375	21.50	23.50	17.63	23.25
Oct.	12.00	14.375	21.50	23.50	17.63	24.50
Nov.		17.19	21.50	23.50	18.42	24.50
Dec.		19.50	21.50	23.50	18.50	24.50*
Average		14.04	21.30	22.33	19.51	21.54*

* Estimate.



World Antimony Production, U. S. Antimony Imports; Brass Scrap and Secondary Brass and Bronze Ingot Prices; Ingot Brass and Bronze Shipments.

METAL FACTS SECTION 2

BRASS SCRAP, No. 1 COMP.

Cents Per Pound, f.o.b. New York*

	1947	1948	1949	1950
Jan.	14.45	12.45	14.19	11.13
Feb.	14.22	12.44	13.06	11.13
March	14.37	13.33	11.83	11.13
April	14.43	12.85	9.19	11.50
May	13.20	12.86	8.56	12.44
June	11.50	12.75	8.13	13.95
July	10.75	13.75	8.69	14.13
Aug.	10.75	14.28	8.88	15.50
Sept.	10.75	13.57	9.23	17.25
Oct.	10.85	14.41	9.13	17.75
Nov.	11.38	15.19	11.06	18.88
Dec.	12.00	14.95	10.73	16.38†
Average	12.39	13.57	10.22	14.25†

* Dealers' Buying Price.
† Estimate.

BRONZE INGOTS, 88-10-2

No. 245, Cents Per Pound, Cars*

	1947	1948	1949	1950
Jan.	21.75	23.25	24.13	19.63
Feb.	21.75	22.13	23.26	19.63
March	23.06	21.42	21.61	19.63
April	23.89	21.95	20.26	20.00
May	22.55	22.25	17.82	20.72
June	21.38	23.00	16.71	23.70
July	20.55	23.25	16.51	24.38
Aug.	21.25	24.38	16.76	27.55
Sept.	20.50	24.80	17.41	29.88
Oct.	19.75	24.38	17.63	32.50
Nov.	19.75	25.57	18.81	36.20
Dec.	21.88	25.16	18.35	37.00†
Average	21.49	23.46	19.11	25.90†

* Delivered.
† Estimate.

BRASS INGOTS, 85-5-5-5

No. 115, Cents Per Pound, Cars*

	1947	1948	1949	1950
Jan.	20.50	19.60	20.38	17.50
Feb.	20.50	19.31	19.01	17.50
March	21.25	18.95	17.98	17.50
April	21.50	19.22	16.94	17.81
May	20.30	19.19	15.07	18.41
June	19.13	19.12	13.96	21.33
July	18.20	19.75	13.76	22.11
Aug.	19.00	21.06	14.13	23.80
Sept.	18.38	21.30	14.91	25.50
Oct.	17.75	20.84	15.13	26.63
Nov.	17.75	21.65	16.81	28.60
Dec.	18.31	21.21	16.85	29.00†
Average	19.38	20.11	16.24	21.14†

* Delivered.
† Estimate.

INGOT BRASS AND BRONZE

Short Tons of Shipments, Monthly*

	1947	1948	1949	1950
Jan.	27,841	26,998	19,456	18,874
Feb.	24,686	22,487	15,026	18,487
Mar.	27,477	24,282	14,550	22,494
Apr.	24,577	25,177	10,695	22,118
May	19,525	23,716	11,114	23,643
June	16,929	24,401	9,698	25,083
July	16,728	20,456	10,220	21,609
Aug.	18,589	24,098	14,194	29,689
Sept.	19,025	23,641	16,208	25,811
Oct.	22,806	21,559	18,036	.....
Nov.	21,666	21,731	18,468	.....
Dec.	23,882	20,954	17,960	.....
	283,711	279,500	175,643	.....

* Delivered.

Source: Ingot Brass & Bronze Institute.

WORLD PRODUCTION OF ANTIMONY, SINCE 1942

Metric Tons, Estimated Production of Other Nations is Included in Total

Country	1942	1943	1944	1945	1946	1947	1948	1949
Canada	1,269	465	809	696	288	480	124	64
Mexico[2]	10,759	12,585	10,058	8,053	6,046	6,371	8,790	5,293
United States	2,457	4,838	3,952	1,811	2,091	4,437	5,416	1,365
Bolivia (exports)	16,231	16,538	6,852	5,093	6,407	9,989	11,280	9,453
Peru	1,457	2,472	932	2,041	969	1,140	1,770	750
Austria	391	571	658	132	15	82	247	349 [10]
Czechoslovakia	[3] 3,130	[4]	[4]	1,115	2,156	1,434	1,593	[4]
France	128	153	116	153	202	200	[4]	[4]
Hungary[3]	2,200	1,500	[5] 1,160	[6]	.....	.....	[4]	[4]
Italy	667	522	403	348	330	450	430	330
Spain	210	176	128	108	96	84	[7] 270	150
Burma[3]	843	843	843	[4]	[4]	68	[4]	[4]
China	[8] 3,510	[8] 505	[8] 203	.....	426	1,908	3,251	[4]
Japan	350	600	450	210	49	100	124	158
Turkey (Asia Minor)	40	8	58	33	36	103	520	420
Algeria	304	902	170	423	.....	110	817	1,298
Morocco:								
French	322	409	166	353	280	390	411	600
Spanish	144	153	72	52	103	128	[9]	150
Southern Rhodesia	169	164	116	29	15	38	10	34
Union of South Africa	990	1,560	2,870	2,250	2,330	3,020	3,700	4,100
Australia	1,042	532	454	172	460	162	39	40 [11]
Total (except U. S. S. R.)	51,400	53,200	36,400	29,900	25,400	34,800	41,300	.....

[1] Approximate recoverable metal content of ore produced, exclusive of antimonial lead ores; 92 pct of reported gross content is used as basis for calculations in nearly every instance. U. S. S. R. and Yugoslavia produce antimony but data on production are not available; an estimate for Yugoslavia is included in the total. Minor producing nations include Honduras, Argentina, Portugal, Indochina, Iran, Pakistan, Siam and New Zealand.
[2] Includes antimony content of antimonial lead.
[3] Estimate.
[4] Data not available; estimate included in total.
[5] January to June inclusive.
[6] Data represent Trianon Hungary after October 1944.
[7] Includes Spanish Morocco.
[8] Data represent area designated as Free China during the period of Japanese occupation.
[9] Included under Spain.
[10] Excludes Soviet Zone, data not available.
[11] Excluding New South Wales, data not available.

Source: U. S. Bureau of Mines



IMPORTS OF ANTIMONY INTO UNITED STATES

Short Tons, Imports of Antimony for Consumption Plus Entries in Bond

	1949		1948		1947		1946		1945	
	Ore Content	Metal	Ore Content	Metal	Ore Content	Metal	Ore Content	Metal	Ore Content	Metal
Belgium and Luxembourg	.....	.....	.....	210	.....	56	.....	.....	.....	.....
Bolivia†	3,153	.....	3,310	.....	2,435	.....	758	.....	11,348	.....
Canada	49	11	31	1	145	.....	.....	.....	.....	.....
Chile†	544	.....	260	.....	348	.....	39	.....	1,564	.....
China	.....	313	.....	2,988	.....	5,915	.....	1,720	.....	571
French Morocco	.....	.....	95	.....	.....	.....	.....	.....	.....	.....
Honduras	8	.....	6	.....	.....	.....	8	.....	17	.....
Italy	.....	.....	.....	30	.....	.....	.....	.....	.....	.....
Japan	.....	.....	.....	.....	.....	.....	.....	873	.....	.....
Mexico	2,985	767	8,674	54	6,138	.....	5,031	.....	8,303	.....
Netherlands	.....	11	.....	.....	.....	.....	.....	.....	.....	.....
Peru†	727	.....	1,062	.....	156	.....	48	.....	1,443	58
Portugal	7	.....	17	.....	.....	.....	.....	.....	.....	.....
Siam	.....	.....	55	3	12	.....	21	.....	.....	.....
South Africa	.....	.....	.....	.....	.....	.....	.....	.....	61	.....
Trieste	.....	5	.....	.....	.....	.....	.....	.....	.....	.....
Turkey	.....	.....	.....	.....	53	.....	.....	.....	.....	.....
United Kingdom	.....	78	.....	.....	.....	28	.....	.....	.....	.....
Yugoslavia	.....	472	22	132	.....	.....	.....	.....	.....	.....
Total imports	7,473	2,081	13,532	3,416	9,287	5,899	5,905	2,593	22,736	627

† Imports shown from Chile were probably mined in Bolivia or Peru.

Source: U. S. Dept. of Commerce

2 METAL FACTS SECTION

Nickel Production, Consumption, Prices, and Imports; Antimony Production and Prices.

ANTIMONY PRICES, MONTHLY, 1929 TO 1950

Cents per pound for American metal f.o.b. Laredo, Tex., since Apr. 1, 1942

	1929	1934	1936	1937	1938	1939*	1942*†	1946†	1947	1948	1949	1950
Jan.	9.62	7.23¾	13.22	14.08¼	15.47	14.00	16.50	14.50	28.25	33.00	38.50	30.05
Feb.	9.61	7.15	12.97	14.68¾	15.72	14.00	16.50	14.50	28.25	33.00	38.50	27.75
Mar.	9.52	7.45	13.37½	16.81¼	15.75	14.00	16.50	14.50	30.62½	33.00	38.50	24.50
Apr.	9.59	7.86¼	13.50	17.00	15.62½	14.00	14.50	14.50	33.00	33.00	38.50	24.50
May	9.12½	8.35½	13.50	15.81¼	14.75	14.00	14.50	14.50	33.00	33.00	38.50	24.50
June	8.90	7.98¾	13.25	14.81¼	13.90	14.00	14.50	14.50	33.00	35.00	38.50	24.50
July	8.56	7.93¾	13.00	14.72½	14.00	14.00	14.50	14.50	33.00	35.00	38.50	24.50
Aug.	8.83¾	8.40	12.62½	15.34	14.00	14.00	14.50	14.50	33.00	35.00	38.50	24.50
Sept.	8.81	8.31¼	12.50	17.65	14.00	14.00	14.50	14.50	33.00	35.00	38.50	31.13
Oct.	8.58	9.21⅞	12.50	18.31¼	14.00	14.00	14.50	14.50	33.00	36.75	33.62	32.00
Nov.	8.62½	11.12½	12.50	16.43¾	14.00	16.50	15.50	21.25	33.00	38.50	32.00	32.00
Dec.	8.53	13.75	12.72½	14.60	14.00	16.50	14.50	24.68¾	33.00	38.50	32.00	32.00
Average	9.03	8.73¼	12.97¼	15.87	14.60	14.42	15.00	15.91	32.01	34.90	37.01	27.66

Asiatic antimony, New York, quoted until the end of March, 1942.
* Price unchanged at 16.50¢ during 1940 and 1941
† Price unchanged at 14.50¢ from 1943 through 1945.

U. S. ANTIMONY PRODUCTION

Short Tons, Ore and Concentrates

	Antimony Content	Average % Sb
1932	419	46.8
1933	587	51.8
1934	404	45.0
1935	559	18.5
1936	755	19.5
1937	1,266	29.8
1938	650	23.8
1939	393	12.4
1940	494	44.0
1941	1,214	39.1
1942	2,944	42.2
1943	5,556	33.1
1944	4,735	35.1
1945	1,930	12.9
1946	2,505	17.9
1947	5,318	26.6
1948	6,489	40.0
1949	1,636	31.1

Source: U. S. Bureau of Mines

WORLD PRODUCTION OF NICKEL, SINCE 1941

Metric Tons, Nickel Content of Ore, Minor Producing Nations in Total

Country	1941	1942	1943	1944	1945	1946	1947	1948	1949
Burma	[2] 471							(1)	(1)
Canada	128,029	129,369	130,642	124,555	111,189	87,146	107,616	118,909	116,417
Cuba	.....	(1)	2,430	4,679	10,900	11,241	2,014	.....	.....
Finland	97	1,630	8,970	313	900	622	(1)	(1)	(1)
Germany	674	577	951	(1)	(1)	.....	.....	.....	.....
Greece	185	706	495	.....	.....	.....	.....	.....	.....
Indonesia	[3] 1,200	[3] 1,200	[3] 1,200	(1)	(1)	.....	.....	.....	.....
Japan	2,311	1,252	1,613	1,720	650	.....	.....	.....	.....
New Caledonia	10,395	9,415	7,374	8,115	4,328	2,779	3,345	4,882	3,371
Norway	907	911	577	529	516	55	.....	.....	(1)
Sweden	101	377	702	698	390	.....	.....	(1)	(1)
South Africa	581	449	343	481	499	497	529	458	618
U. S. S. R.[3]	13,600	(1)	11,160	(1)	13,400	20,000	25,000	25,000	25,000
United States[4]	599	555	582	896	1,048	319	586	801	717
Total (estimate)	162,000	158,000	167,000	157,000	145,000	123,000	139,000	150,000	146,000

[1] Data not available; estimate included in total.
[2] Data cover 9 months ended Mar. 31, 1942.
[3] Estimate.
[4] Byproduct in electrolytic refining of copper. In 1941 includes also production from ore and as byproduct of talc; in 1944 and 1945 includes also production from ore.

Source: U. S. Bureau of Mines

U. S. NICKEL PRODUCTION

Short Tons, Primary and Secondary

	Primary	Secondary Recovery
1930	308	2,900
1931	373	2,070
1932	195	1,450
1933	126	1,650
1934	157	1,850
1935	160	1,950
1936	107	1,965
1937	219	2,400
1938	418	2,300
1939	394	2,920
1940	554	4,152
1941	660	5,315
1942	612	4,142
1943	642	6,917
1944	988	4,321
1945	1,155	6,483
1946	352	8,248
1947	648	9,541
1948	883	8,850
1949	790	5,680

Source: U. S. Bureau of Mines

NICKEL IMPORTED INTO THE UNITED STATES

Short Tons, Nickel Imported for Consumption, Since 1926

	Ore and Matte	Pigs, Ingots, Shot, Bars, Rods, Tubes, etc.	Oxide	Nickel Silver	Gross Weight	Nickel Content*
1926	7,318	14,704	743	3	22,768	19,300
1927	5,372	14,610	507	8	20,497	17,900
1928	9,295	24,559	872	13	34,738	30,300
1929	14,491	32,355	1,638	7	48,486	41,500
1930	10,297	19,162	677	8	30,143	25,300
1931	5,815	11,817	152	5	17,789	15,100
1932	2,959	7,512	344	1	10,816	9,400
1933	9,610	18,811	1,010	.....	28,430	21,900
1934	5,923	22,900	475	.....	29,298	21,000
1935	7,962	29,429	456	.....	37,848	34,200
1936	11,597	40,269	1,275	.....	53,141	47,600
1937	12,543	40,615	1,022	.....	54,180	47,884
1938	7,290	21,978	278	.....	29,546	26,200
1939	14,217	49,763	816	.....	64,795	58,200
1940	17,445	70,530	4,493	.....	92,468	83,780
1941	39,946	74,993	9,189	1	124,130	106,182
1942	40,189	80,788	11,977	.....	132,954	114,275
1943	43,486	92,579	5,184	.....	141,249	122,492
1944	36,414	93,053	5,465	.....	134,932	118,293
1945	25,039	78,402	19,087	.....	122,528	107,433
1946	19,046	71,163	14,521	5	104,734	92,800
1947	14,636	58,687	15,074	11	88,408	80,718
1948	13,854	71,567	21,514	4	106,939	98,880
1949	11,128	73,789	12,242	.....	97,139	879,107

* Estimate by Bureau of Mines.

Source: U. S. Bureau of Mines

U. S. NICKEL CONSUMPTION

Short Tons, Excludes Scrap Recovery

	1949	1948	1947	1946
Stainless steel	11,909	16,244	15,350	17,993
Alloy steel	13,474	21,782	17,379	15,697
Cast iron	3,396	4,216	3,953	2,967
Nonferrous alloys*	18,971	28,03	27,378	25,910
High temperature and resistance alloys	4,054	6,188	5,130	6,798
Anodes	13,810	14,213	8,988	8,530
Plating salts	724	609	664	771
Catalysts	487	595	439	272
Ceramics	149	185	193	184
Other	1,340	1,457	1,347	1,053
Total	68,326	93,558	80,757	80,106

* Includes copper-nickel alloys, nickel silver, brass, bronze, berryllium, magnesium and aluminum alloys; and Monel, Inconel and malleable nickel.

Source: U. S. Bureau of Mines

ELECTROLYTIC NICKEL

Cents Per Pound, New York, Duty Paid

1929 to Nov. 24, 1946	35.00
Nov. 25, 1946 to Dec. 31, 1947	37.67
Jan. 1, 1948 to July 21, 1948	38.00
July 22, 1948 to Dec. 31, 1948	36.00
Jan. 1, 1949 to Aug. 31, 1949	42.83
Sept. 1, 1949 to May 31, 1950	42.97
June 1, 1950 to Dec. 31, 1950	51.22
Dec. 13, 1950 to Dec. 31, 1950	53.55

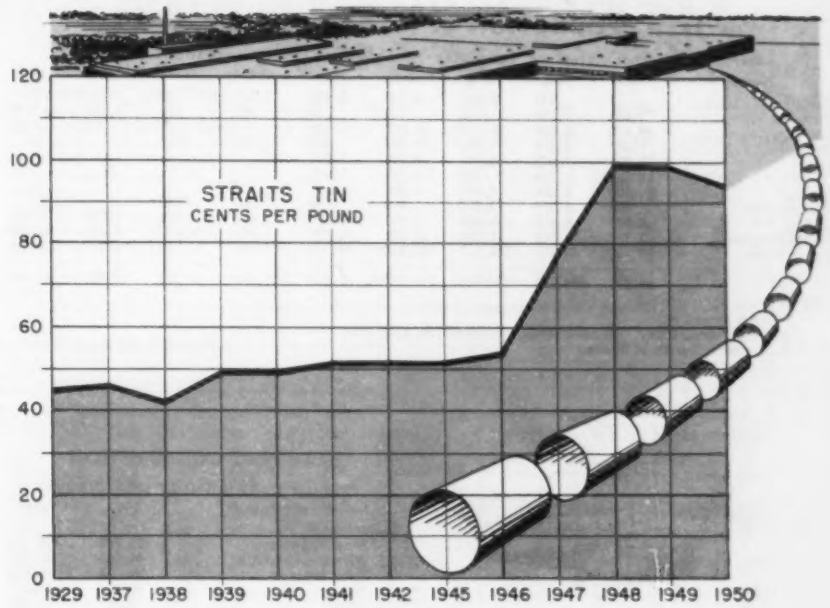
STRAITS TIN, PROMPT PRICE

Cents Per Pound, at New York

	1929	1936	1938	1939	1940	1941
Jan.	49.21	47.23	41.54	46.39	48.73	50.16
Feb.	49.39	47.94	41.23	45.64	45.85	51.41
March	48.85	48.00	41.16	46.17	47.07	52.07
April	45.93	46.97	38.41	47.16	46.96	52.03
May	43.88	46.31	36.83	49.00	51.51	52.18
June	44.20	42.24	40.36	48.81	54.64	52.68
July	46.29	42.96	43.38	48.53	51.61	53.41
Aug.	46.60	42.57	43.26	48.80	51.21	52.45
Sept.	45.32	44.77	43.40	Nom.	50.30	52.00
Oct.	42.25	44.95	45.25	55.68	51.50	52.00
Nov.	40.18	51.30	46.29	52.65	50.57	52.00
Dec.	39.87	51.85	46.21	51.40	50.11	52.00
Average	45.16	46.42	42.28	49.11	49.84	52.03

		1946	1947	1948	1949	1950
Jan.		52.00	70.00	94.00	$1.03	75.75
Feb.		52.00	70.00	94.00	$1.03	74.50
March		52.00	70.00	94.00	$1.03	75.62
April	1945	52.00	80.00	94.00	$1.03	76.38
May	1944	52.00	80.00	94.00	$1.03	77.50
June	1943	52.00	80.00	$1.03	$1.03	77.70
July	1942 price	52.00	80.00	$1.03	$1.03	89.88
Aug.	fixed	52.00	80.00	$1.03	$1.03	$1.02
Sept.	at	52.00	80.00	$1.03	$1.02	$1.01
Oct.	52.00	52.00	80.00	$1.03	95.49	$1.13
Nov.		61.00	80.00	$1.03	90.11	$1.38
Dec.		70.00	85.38	$1.03	79.06	$1.45*
Average		54.00	77.95	99.25	99.22	95.53*

* Estimate.



WORLD PRODUCTION OF COBALT, SINCE 1940

Metric Tons of Cobalt Contained in Mine Production of Ores

Country[1]	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
Australia	12	13	14	15	9	10	11	12	15	(3)
Belgian Congo	2,301	2,256	1,856	2,061	1,877	2,900	2,150	3,563	4,322	4,350
Bolivia (Exports)	2	2	(2)	(2)	....	....	....	....	....	(2)
Burma	218	73	(2)	(2)	(2)	(2)	(2)	(2)	(2)	....
Canada[1]	360	119	38	80	16	49	34	280	701	278
Chile	(2)	2	(2)	3	5	1	(2)	(2)	(2)	(2)
Finland	(2)	(2)	98	79	88	84	101	50	(2)	(2)
Italy	89	81	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Japan	....	(2)	1	3	15	11	7	6	(2)	(2)
Morocco, French	330	68	3	216	243	100	200	370	278	209
Northern Rhodesia[4]	1,223	650	914	943	978	874	552	420	387	402
Sweden	....	....	....	....	....	9	....	....	....	(2)
United States (Shipments)	58	237	300	346	253	581	230	307	263	306
Total (Estimate)	5,000	4,000	3,500	4,200	3,900	4,700	3,500	5,200	6,200	5,900

In addition to countries listed, Brazil, China, Germany, and Spain produce cobalt, but production data are not available. Estimate included in total.

[1] Excludes cobalt recovered by Mond Nickel Co. at Clydach, Wales, from nickel copper ores of Sudbury, Ont. district.
[2] Data not available; estimate included in total.
[3] Less than 1 ton.
[4] Year ended June 30 of year stated.

Source: Bureau of Mines

CONSUMPTION OF COBALT IN UNITED STATES

Pounds of Cobalt Contained, Broken Down According to Use

	1946	1947	1948	1949
Metallic:				
High-Speed Steel	224,049	223,148	289,381	283,496
Magnet Steel	[1]1,483,539	121,223	165,698	42,965
Permanent Magnet Alloys		894,924	1,186,673	1,184,920
Other Steel	201,949	386,354	503,062	472,193
Cast Cobalt-Chromium-Tungsten-Type Alloys	526,504	642,452	826,329	928,528
Alloy Hard-Facing Rods and Materials	53,674	71,545	116,313	82,965
Cemented Carbides	145,100	62,734	115,687	118,522
Other	81,988	99,476	115,255	116,344
Total Metallic	2,597,003	2,501,856	3,318,428	3,239,933
Nonmetallic (Exclusive of Salts and Driers):				
Ground-Coat Frit	412,766	607,316	613,745	424,051
Pigments	170,662	207,928	232,725	188,606
Other	39,596	51,439	66,699	84,336
Total Nonmetallic	623,024	886,683	913,169	696,993
Salts and Driers: Lacquers, Varnishes, Paints, Inks, Pigments, Enamels, Glazes, Feed, Electroplating, etc. (Estimate)	885,000	797,000	818,000	765,000
Grand Total	4,105,027	4,185,539	5,049,597	4,701,926

[1] Revised figure

Source: Bureau of Mines

COBALT, 97 TO 99 PCT.

Per Pound, 550 lb Lots Since 1947

1940 to June 30, 1947[1]	$1.50
July 1, 1947 to Mar. 31, 1949	1.65
Apr. 1, 1949 to Dec. 31, 1950	1.80

[1] 100 lb lots.

A list of trade associations and technical societies in nonferrous and other fields begins on p. 150.

LEAD PRICE, COMMON GRADE

Cents Per Pound, at New York

	1929	1936	1938	1939	1940	1941
Jan.	6.85	4.50	4.87	4.83	5.47	5.50
Feb.	6.85	4.51	4.63	4.80	5.08	5.60
Mar.	7.41	4.60	4.50	4.82	5.19	5.77
Apr.	7.19	4.60	4.50	4.78	5.07	5.85
May	7.00	4.60	4.40	4.75	5.02	5.85
June	7.00	4.60	4.15	4.80	5.00	5.85
July	6.80	4.60	4.88	4.85	5.00	5.85
Aug.	6.75	4.60	4.90	5.04	4.85	5.85
Sept.	6.88	4.60	5.00	5.45	4.93	5.85
Oct.	6.87	4.63	5.10	5.50	5.31	5.85
Nov.	6.29	5.11	5.09	5.50	5.73	5.85
Dec.	6.25	5.55	4.84	5.50	5.50	5.85
Average	6.83	4.71	4.74	5.05	5.18	5.79

		1946	1947	1948	1949	1950
Jan.		6.50	13.00	15.00	21.50	12.00
Feb.		6.50	13.25	15.00	21.50	12.00
Mar.		6.50	15.00	15.00	18.98	10.96
Apr.	1945	6.50	15.00	17.21	15.15	10.63
May	1944	6.50	15.00	17.50	13.72	11.72
June	1943	8.18	15.00	17.50	12.00	11.81
July	1942 price	9.18	15.00	17.80	13.56	11.66
Aug.	fixed	8.25	15.00	19.50	14.99	12.93
Sept.	at	8.25	15.00	19.50	15.05	15.80
Oct.	6.50	8.25	15.00	19.50	13.42	16.00
Nov.		10.41	15.00	21.50	12.52	17.00
Dec.		12.20	15.00	21.50	12.00	*17.00
Average		8.10	14.59	18.04	15.37	*13.29

*Estimate

2 METAL FACTS SECTION

Magnesium Production and Consumption; Zinc Consumption; Imports of Zinc.

WORLD PRODUCTION OF MAGNESIUM SINCE 1941

Metric Tons, Production or Estimates for Minor Producing Nations in Total

Country	1941	1942	1943	1944	1945	1946	1947	1948	1949
Canada	5	367	3,245	4,799	3,338	145	136	.....	[1]
France	1,889	1,334	1,542	703	279	707	800	1,507	[3]700
Germany	24,000	30,000	32,400	33,800	[2]4,225	.....	.....	17	.....
Italy	1,857	2,379	[2]2,000	[3]3,000	[3]400	[3]1,000	[2]800	[1]	.....
Japan	2,575	2,020	2,777	2,904	1,020	.....	.....	.....	.....
Korea	263	240	532	1,628	1,014	.....	.....	[1]	.....
Norway[3]	100	2,000	2,000	2,000	.....	.....	.....	.....	.....
Switzerland[3]	700	1,500	1,500	1,000	500	300	[3]500	.....	.....
U. S. S. R.[3]	4,000	5,000	5,000	5,000	2,170	3,000	4,000	5,000	5,000
United Kingdom	9,380	14,865	19,096	13,094	[1]6,900	[1]1,700	[1]2,500	3,500	[4]5,100
United States	14,782	44,418	166,544	142,518	29,748	4,823	11,198	9,075	10,521
Total	59,825	104,876	237,760	211,182	49,815	11,675	19,734	19,300	21,500

[1] Includes secondary.
[2] January-February only. Planned production for March, 2,830 tons.
[3] Estimated by Bureau of Mines.

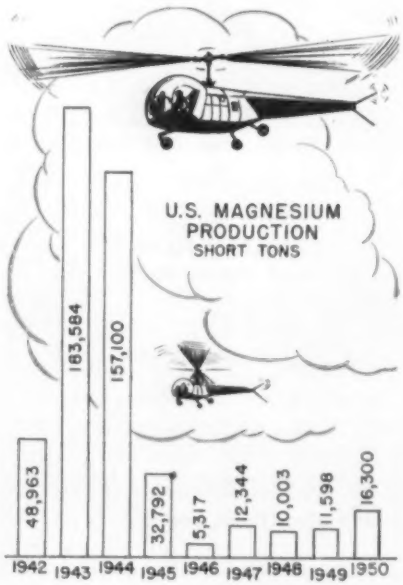
Source: U. S. Bureau of Mines

MAGNESIUM OUTPUT AND USE

With Secondary, Short Tons

	1950
Primary ingot produced	15,750
Primary ingot sold and used by producer:	
For magnesium alloys	12,500
For aluminum alloys and other non-magnesium use	8,000
Total sold and used	20,500
Magnesium cast and wrought products shipped	14,000
Metals required for cast and wrought products	15,500
Secondary magnesium:	
Used in magnesium alloys	3,000
Used in aluminum and non-magnesium industries	3,000
Total secondary used	6,000
Total consumption of primary and secondary	26,500

Source: Estimated by Magnesium Assn.



SLAB ZINC CONSUMPTION

Short Tons, by Industry and Product

Industry and Product[1]	1948	1949
Galvanizing:[2]		
Sheet and strip	120,360	148,923
Wire and wire rope	49,906	39,231
Tube and pipe	81,874	78,030
Fittings	14,037	11,487
Other	104,792	75,209
Total	370,969	350,880
Brass products:		
Sheet, strip, and plate	51,813	43,157
Rod and wire	32,076	23,651
Tube	15,690	12,816
Castings and billets	4,226	2,620
Copper-base ingots	3,846	2,701
Other copper-base products	1,587	589
Total	109,140	85,534
Zinc-base alloy:		
Die castings	230,995	199,665
Alloy dies and rod	3,171	2,024
Slush and sand castings	462	492
Total	234,628	202,181
Rolled zinc	76,672	55,200
Zinc oxide	15,657	10,292
Other uses:		
Wet batteries	1,388	1,359
Desilverizing lead	2,654	2,448
Light-metal alloys	1,125	1,060
Other[3]	5,522	2,887
Total	10,689	7,754
Total: All uses	[4]817,735	[4]711,841

[1] Based on a canvass of 610 plants.
[2] Includes zinc used in electrogalvanizing, but excludes sherardizing.
[3] Includes zinc used in making zinc dust, bronze powder, alloys, chemicals, castings and miscellaneous uses not elsewhere mentioned.
[4] Includes 3,141 tons of remelt zinc in 1948 and 2,394 tons in 1949.

Source: Bureau of Mines

ZINC IMPORTS INTO U. S.

Short Tons, Imports for Consumption

	Ores (Zn content)	Blocks, Pigs, Slabs	Old Dross, Skimmings
1929	.....	226	.....
1930	.....	281	35
1931	.....	274	.....
1932	.....	310	.....
1933	2,133*	1,890	.....
1934	14,277*	1,725	.....
1935	10,520*	4,444	29
1936	172*	11,660	18
1937	8,812*	37,208	678
1938	4,860	7,230	96
1939	33,503	30,960	283
1940	44,637	10,148	520
1941	154,520	40,288	456
1942	283,167	36,352	3,357
1943	516,646	56,155	5,148
1944	415,004	63,626	5,693
1945	330,397	96,710	7,331
1946	166,885	104,015	4,137
1947	194,822	72,063	5,105
1948	133,814	92,495	10,273
1949	240,881	126,925	3,746
1950†	171,628	107,621	1,038

* Includes entries under bond.
† Eight Months.

Source: Bureau of Mines, Department of Commerce, and American Bureau of Metal Statistics

Is industry headed for a straitjacket, freedom or a hobble? Read Tom Campbell's proposal for a vice-president in charge of the president, on p. 263.

MAGNESIUM CONSUMPTION

Short Tons, Primary Metal Only

Product	1948	1949
Structural products:		
Castings:		
Sand	1,930	3,088
Die	213	127
Permanent mold	12	44
Sheet	1,122	2,155
Extrusions	2,529	3,364
Forgings	103	200
Total structural	5,909	8,978
Other products:		
Powder	.....	.....
Aluminum alloys	2,324	1,789
Other alloys	43	39
Scavenger and deoxidizer	418	404
Chemical	407	224
Cathodic protection	367	235
Other[1]	193	306
Total other products	3,752	2,969
Grand Total	9,661	11,947

[1] Included primary metal consumed in making secondary alloy.

Source: Bureau of Mines

U. S. PRODUCTION OF PRIMARY MAGNESIUM

Short Tons, Excludes Crystal Equivalent of Mg Content of Fire Bombs in 1943, 1944

Month	1942	1943	1944	1945	1946	1947	1948	1949	1950
January	2,512	10,300	20,056	3,816	98	1,398	883	988	1,000
February	2,337	10,668	19,537	2,958	48	1,232	830	884	900
March	2,591	13,008	19,571	3,297	10	1,472	887	988	950
April	2,506	13,558	17,986	3,174	.....	1,153	801	958	950
May	2,635	15,093	16,217	3,171	.....	926	797	987	950
June	2,631	15,077	13,750	3,404	241	848	766	950	1,150
July	3,299	16,584	14,134	4,586	692	905	792	985	1,350
August	3,428	17,160	11,561	4,500	889	849	809	970	1,400
September	4,120	16,199	8,298	2,063	986	886	819	974	1,650
October	5,838	18,011	7,370	1,017	1,000	912	873	941	1,700
November	7,953	18,374	5,301	715	558	870	814	969	1,850
December	9,115	19,554	3,321	101	795	893	932	1,004	1,900
Total	48,963	183,584	157,100	32,792	5,317	12,344	10,003	11,598	15,750

Producers' reports to WPB, Jan. 1942 to Aug. 1945, thereafter to Bureau of Mines and Magnesium Assn.

Magnesium Prices, Use and Recovery; Zinc Exports and Prices; Cadmium Prices and Production, Cadmium Imports and Exports.

METAL FACTS SECTION 2

MAGNESIUM, 99.8 PCT PLUS

Cents Per Pound, at Freeport, Tex.

1929	56.00	1935	30.00	1941	27.00
1930	48.00	1936	30.00	1942	22.50
1931	34.00	1937	30.00	1943 through 1949	20.50
1932	29.00	1938	30.00		
1933	26.00	1939	27.00		
1934	26.00	1940	27.00		

1950

Jan.	20.50	May	20.50	Sept.	22.50
Feb.	20.50	June	21.50	Oct.	24.50
Mar.	20.50	July	21.75	Nov.	24.50
Apr.	20.50	Aug.	22.50	Dec.	24.50

1950 Average 22.02

RECOVERY OF SECONDARY MAGNESIUM IN U. S.

Short Tons, Broken Down by Form of Recovery, Since 1943

Form of Recovery	1943	1944	1945	1946	1947	1948	1949
Magnesium-Alloy Ingot[1] (Gross Weight)	11,009	13,379	7,359	2,508	5,138	4,713	4,249
Magnesium-Alloy Castings (Gross Weight)	327	235	486	1,145	1,377	1,301	881
Magnesium-Alloy Shapes	.....	.....	864	138	85	1	96
In Aluminum Alloys	34	23	274	1,218	1,883	998	294
In Zinc Alloys	1	5	3	4	3	6	4
In Other Alloys	.....	2	10	2	.....	.....	.....
Chemical and Incendiary Uses	33	541	241	106	199	84	83
Cathodic Protection	.....	.....	.....	.....	818	450	555
	11,404	14,185	9,247	5,117	9,503	7,553[2]	5,962

[1] Figures include secondary magnesium incorporated in primary magnesium ingot. Source: U. S. Bureau of Mines

ZINC EXPORTS FROM U. S.

Short Tons, Ore and Manufactures

	Ore, Concentrates, Dross	Slabs, Plates, Blocks	Sheet, Strip etc.	Dust
1929	3,561	14,411	5,265	1,256
1930	1,162	4,633	3,868	1,177
1931	395	843	2,759	1,400
1932	178	6,471	3,010	1,378
1933	809	1,145	3,189	1,589
1934	3,452	5,105	3,462	1,658
1935	461	1,617	4,813	1,613
1936	245	37	4,483	1,793
1937	314	249	5,813	2,145
1938	135	[1]	5,736	2,253
1939	303	4,515	6,708	2,384
1940	448	79,091	7,490	3,044
1941	.....	89,309	5,246	2,901
1942	.....	133,981	4,767	1,772
1943	.....	97,439	3,167	5,859
1944	.....	21,576	4,020	295
1945	.....	7,782	6,235	330
1946	89	37,431	13,846	366
1947	1,404	106,669	10,898	1,646
1948	3,547	65,837	7,344	881
1949	2,925	59,709	7,455	690
1950*	.....	2,677	.....	.....

* Eight months. (1) Pigs and slabs not shown separately; included with sheets, strip, etc.

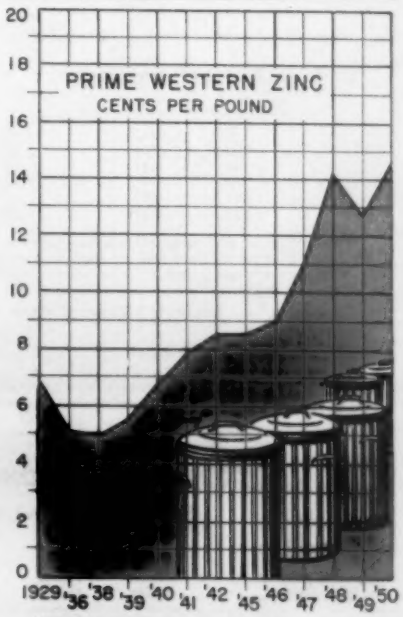
Source: Bureau of Mines, Department of Commerce, and American Bureau of Metal Statistics

PRIME WESTERN ZINC PRICE

Cents Per Pound, at New York

	1929	1936	1938	1939	1940	1941
Jan.	6.70	5.22	5.35	4.89	6.03	7.65
Feb.	6.70	5.23	5.17	4.89	5.93	7.65
Mar.	6.80	5.27	4.77	4.89	6.14	7.65
Apr.	7.04	5.27	4.53	4.89	6.14	7.65
May	6.98	5.27	4.43	4.89	6.20	7.65
June	7.00	5.26	4.53	4.89	6.83	7.65
July	7.10	5.16	5.14	4.91	6.84	7.65
Aug.	7.15	5.17	5.14	5.11	6.79	7.65
Sept.	7.15	5.22	5.24	6.51	7.33	7.65
Oct.	7.09	5.22	5.40	6.89	7.84	8.36
Nov.	6.63	5.35	5.12	6.89	7.64	8.65
Dec.	6.09	5.64	4.89	6.46	7.65	8.65
Average	6.87	5.27	4.98	5.51	6.73	7.88

		1948	1947	1946	1949	1950
Jan.		8.65	11.005	11.69	18.18	9.48
Feb.		8.65	11.005	12.61	18.20	10.47
Mar.		8.65	11.005	12.61	17.76	10.66
Apr.	1945	8.65	11.005	12.61	14.76	11.41
May	1944	8.65	11.005	12.84	12.58	12.71
June	1943	8.65	11.005	12.65	10.27	15.49
July	1942 price fixed at	8.69	11.005	13.09	10.86	15.72
Aug.		8.69	11.005	15.65	10.70	15.72
Sept.		8.69	11.005	15.65	10.77	17.82
Oct.	9.85	9.28	11.03	15.74	10.04	18.22
Nov.		10.86	11.06	17.27	10.46	18.22
Dec.		10.94	11.06	18.15	10.47	18.22
Average		9.09	11.02	14.20	12.85	14.51



CADMIUM PRICES, STICKS, BARS

Dollars Per Pound, 1 to 5-Ton Lots

June 3, 1943 to July 17, 1946	$0.90
July 18, 1946 to Nov. 20, 1946	1.25
Nov. 21, 1946 to Dec. 4, 1946	1.37½
Dec. 5, 1946 to Feb. 19, 1947	1.50
Feb. 20, 1947 to Aug. 11, 1948	1.75
Aug. 12, 1948 to Nov. 17, 1948	1.90
Nov. 18, 1948 to June 14, 1950	2.00
June 15, 1950 to Sept. 10, 1950	2.15
Sept. 11, 1950 to Nov. 20, 1950	2.40
Dec. 1, 1950 to Dec. 31, 1950	2.55

U. S. CADMIUM PRODUCTION

Short Tons of Contained Cadmium

	Metallic Cadmium	Compounds	Secondary Recovery
1932	400	130	...
1933	1,138	201	...
1934	1,389	283	...
1935	1,739	254	...
1936	1,817	313	...
1937	2,133	414	...
1938	2,039	216	...
1939	2,206	340	...
1940	2,981	423	114
1941	3,469	148	190
1942	3,862	24	158
1943	4,196	35	31
1944	4,227	163	53
1945	3,966	226	36
1946	3,100	135	178
1947	4,004	250	52
1948	3,791	96	61
1949	4,012	175	87

Source: U. S. Bureau of Mines

U. S. CADMIUM EXPORTS

Gross Weight in Pounds, 1947-1949

Kind	1947	1948	1949
Dross, flue dust, residues, scrap	18,251	92,847	500
Metal	303,401	955,701	566,135
Alloys	.....	1,506	3,000
Total	321,652	1,050,054	569,635

See Section 5 for data on various nonferrous castings and prices and production of nonferrous powders. . . . It also contains an analysis of jet engine alloys.

CADMIUM IMPORTED INTO THE UNITED STATES

Metal in Pounds, Flue Dust and Total 000 Omitted, Imports for Consumption

	1949	1948	1947	1946	1945	1944	1943	1942
Metallic Cadmium								
Australia	7,218	.....	.....	6,700	25,798	53,082	40,355	53,298
Belgian Congo	.....	.....	.....	.....	.....	.....	.....	.....
Belgium and Luxembourg	48,503	.....	2,000	2,240	.....	.....	.....	.....
Canada	68,140	6,300	14,612	3,568	672	.....	.....	.....
Italy	.....	.....	.....	.....	.....	8,656	.....	.....
Japan	31,640	.....	.....	.....	.....	.....	.....	.....
Peru	1,711	3,509	3,658	4,907	2,254	4,899	8,536	.....
Switzerland	.....	.....	2	.....	.....	.....	.....	.....
United Kingdom	.....	.....	29	.....	.....	.....	.....	.....
Total	.....	.....	20,292	17,415	28,724	66,627	48,891	53,298
Flue Dust								
Australia	.....	621	.....	.....	.....	.....	.....	.....
Brazil	2,906	.....	.....	.....	.....	.....	.....	.....
Mexico	1,786,761	1,827,518	2,356	1,609	2,193	1,689	1,843	(1)
Netherlands	.....	.....	.....	44	.....	.....	.....	(1)
Total Metallic Cadmium and Flue Dust	.....	.....	2,376	1,670	2,221	1,756	1,692	(1)

[1] Data not published. Source: U. S. Dept. of Commerce

2 METAL FACTS SECTION

Production of Molybdenum, Vanadium, and Mercury; Recovery of Secondary Lead; Employment, Hours and Earnings in Nonferrous Metal Industry.

WORLD PRODUCTION OF MOLYBDENUM, FROM 1941

Metric Tons of Ores and Concentrates, Molybdenum From Other Nations in Total[1]

Country[1]	1941	1942	1943	1944	1945	1946	1947	1948	1949
Canada	47	43	178	509	228	184	207	79	.....
Chile	229	580	680	1,051	841	560	402	532	558
China: Manchuria[2]	75	384	516	516	30	.....	.....	.....	.....
Finland	148	126	108	110	92	99	.....	.....	.....
Japan	41	56	87	189	108	52	18	1	.....
Korea, South	122	217	291	394	54	.....	5	2	11
Mexico	522	855	1,138	717	468	818	136	.....	.....
Norway	229	368	227	248	76	10	103	79	70
Peru	146	154	85	62	29	4	3	3	2
United States	18,309	25,829	27,972	17,545	13,972	8,264	12,288	12,114	10,219
Total	20,300	29,000	31,400	21,400	15,900	10,800	14,000	13,600	11,500

[1] Molybdenum is also produced in Greece, Rumania, Turkey, U. S. S. R., and Yugoslavia, but production data are not available.
[2] Exports to Japan proper.

Source: U. S. Bureau of Mines

U. S. MOLYBDENUM OUTPUT

Short Tons of Contained Molybdenum

1926	697	1938	18,848
1927	1,150	1939	15,102
1928	1,714	1940	17,157
1929	2,011	1941	20,102
1930	1,862	1942	28,471
1931	1,567	1943	30,534
1932	1,216	1944	19,340
1933	2,641	1945	15,401
1934	4,681	1946	9,109
1935	5,756	1947	13,524
1936	8,593	1948	13,353
1937	14,710	1949	11,285

Source: U. S. Bureau of Mines

U. S. VANADIUM ORE OUTPUT

Short Tons, Contained Vanadium

1936	70	1942	2,220
1937	543	1943	2,793
1938	807	1944	1,764
1939	982	1945	1,492
1940	1,081	1946	636
1941	1,257	1947	1,059

Vanadium content of carnotite ore, vanadium and complex ores. Data for 1940 and 1947 are receipts at mills and government purchasing depots. Data following 1947 not released for publication.

Source: U. S. Bureau of Mines

WORLD PRODUCTION OF VANADIUM, SINCE 1940

Metric Tons, Total Excludes Russia, French Morocco and Spain, also Byproduct

	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
Argentina	1	6	.....	.....	4	3	6	7	(1)	(1)
Mexico	32	(2)	.....	.....	.....	.....	.....	.....	.....	.....
Northern Rhodesia	368	342	388	426	254	219	68	56	173	183
Peru	1,214	1,017	1,010	847	514	686	322	435	511	456
South-West Africa	428	269	453	577	385	420	430	282	187	169
United States (shipments)[3]	981	1,140	2,014	2,534	1,600	1,344	577	961	(4)	(4)
Total[5]	3,024	2,774	3,865	4,384	2,757	2,674	1,403	1,741	(4)	(4)

[1] Figure not available. [2] Less than 1 ton. [3] Includes also vanadium recovered as a byproduct of phosphate-rock mining. [4] Bureau of Mines not at liberty to publish figure. [5] Total represents data only for countries shown in table.

Source: U. S. Bureau of Mines

RECOVERY OF SECONDARY LEAD IN THE U. S.

Short Tons of Metal, Showing Form of Recovery

Form of Recovery	1943	1944	1945	1946	1947	1948	1949
As Metal:							
At Primary Plants	21,634	11,388	18,525	8,013	15,662	4,952	23,230
At Other Plants	36,688	43,678	42,588	65,691	95,843	126,951	129,396
	58,322	55,046	61,123	73,704	111,505	131,903	152,626
In Antimonial Lead[1]	176,076	180,818	194,079	193,684	265,935	243,552	172,742
In Other Lead Alloys	76,474	68,271	77,051	94,653	103,799	102,603	78,894
In Copper-Base Alloys	28,625	26,667	30,346	30,101	30,137	21,449	7,440
In Tin-Base Alloys	1,746	614	440	645	594	514	481
	341,243	331,416	363,039	392,787	511,970	500,071	412,183

[1]Includes lead recovered in secondary antimonial lead at primary plants.

Source: U. S. Bureau of Mines

EMPLOYMENT, HOURS, EARNINGS

Nonferrous Metal Finishing*

	Production and Related Workers				All Employees
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)	Number (thousands)
1947	$51.89	39.7	$1.307	93.3	111.5
1948	57.81	40.2	1.438	86.0	103.8
1949	58.05	38.7	1.500	70.6	87.0
1950					
Jan.	61.97	40.5	1.530	73.7	89.0
Feb.	63.29	41.1	1.540	75.0	90.6
Mar.	64.29	41.4	1.553	76.5	92.4
Apr.	64.29	41.4	1.553	77.1	93.2
May	66.63	42.2	1.579	78.9	95.1
June	67.75	42.8	1.583	80.3	96.6
July	67.76	42.4	1.598	79.5	96.0

* Rolling, Drawing, and Alloying

Source: Bureau of Labor Statistics

EMPLOYMENT, HOURS, EARNINGS

Nonferrous Metal Manufacturing*

	Production and Related Workers				All Employees
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)	Number (thousands)
1947	$52.73	41.0	$1.286	46.9	55.1
1948	58.22	41.0	1.420	46.8	55.6
1949	60.36	40.4	1.494	43.3	52.3
1950					
Jan.	62.07	41.3	1.503	42.5	51.1
Feb.	60.24	40.4	1.491	45.3	54.1
Mar.	61.13	40.7	1.502	45.4	54.4
Apr.	61.61	40.8	1.510	45.2	54.2
May	61.98	40.8	1.519	45.5	54.6
June	62.58	40.9	1.530	46.0	55.2
July	62.83	40.3	1.559	45.1	54.3

* Primary Metal Industries Group, Primary Smelting and Refining.

Source: Bureau of Labor Statistics

WORLD PRODUCTION OF MERCURY, SINCE 1942

Number of 76 Pound Flasks, Estimated Production of Other Nations Is in Total

Country[1]	1942	1943	1944	1945	1946	1947	1948	1949
Algeria	121	146	166	326	340	348	381	182
Canada	13,630	22,240	9,682	.....	.....	.....	.....	.....
Chile	2,256	2,563	1,181	862	827	445	467	(2)
China	4,293	3,133	3,510	1,828	1,189	290	290	(2)
Czechoslovakia	(2)	(2)	(2)	(2)	(2)	768	800	(2)
Germany	493	3,490	3,480	(2)	.....	(2)	(2)	(2)
Italy	75,921	58,004	28,704	25,410	50,822	53,994	38,233	44,000
Japan	5,197	6,706	7,086	3,139	1,361	1,619	1,689	2,461
Mexico	32,443	28,321	26,063	16,443	11,661	9,700	4,788	5,250
Peru	145	326	152	209	5	.....	.....	.....
Spain	72,268	47,756	34,349	40,694	41,801	55,608	22,684	32,289
Turkey	271	186	97	158	.....	98	(2)	.....
Union of South Africa	579	1,189	1,192	852	764	.....	.....	.....
United States	50,846	51,929	37,688	30,763	25,348	23,244	14,386	9,930
Total	265,000	236,000	163,000	131,000	144,000	164,000	102,000	112,000

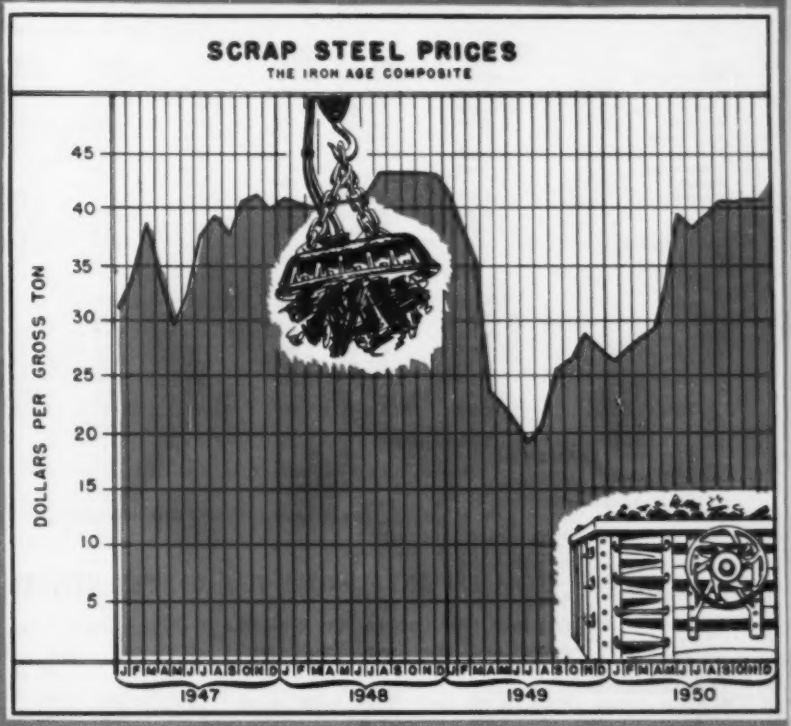
[1] Mercury is also produced in Korea (Chosen) and U. S. S. R., but production data are not available; estimates included in the total. Totals include output or estimates for minor producing nations, including Australia, Austria, Bolivia, New Zealand, Rumania, Southern Rhodesia, Sweden, Tunisia and Yugoslavia.
[2] Data not yet available; estimates included in the total.

Source: U. S. Bureau of Mines

THE IRON AGE SECTION 3

METAL INDUSTRY FACTS

Raw Materials, Ore, Scrap, Coal and Coke



IN THIS SECTION:

Page

ALLOYING MATERIALS 322

BLAST FURNACES
- Canadian statistics 311
- Capacity 310
- Coke receipts 318
- Consumption of materials 310
- No. of in U. S. 310

BRICKS, REFRACTORY 321

CANADIAN STATISTICS ... 311

CAPACITY 310, 311

CHROMITE 320

COAL
- Consumption 317, 322
- Exports 317
- Production 317
- Resources, reserves 314

COKE 318

CONSUMPTION
- Alloying materials 322
- Blast furnace materials 310
- Coal 317, 322
- Coke, blast furnace 318
- Electric power 322
- Fluxes 322
- Fuel oil 322
- Iron ore 313
- Natural gas 322
- Nonferrous metals 322
- Scrap 317
- Tar and pitch 322

ELECTRIC POWER 322

EMPLOYMENT
- Hours, earnings, rates
  - Coal 316
  - Iron mining 315

EXPORTS
- Coal 317
- Coke 319
- Pig iron 310

FERROMANGANESE ...320, 321

FERROSILICON 320, 321

FLUXES 322

FUEL OIL 322

IMPORTS
- Chromite 320
- Coke 318
- Ferrosilicon 321
- Iron ore 322
- Manganese 319
- Pig iron 310

INVENTORIES, SCRAP 316

IRON ORE
- Analyses, Grades 313
- Beneficiated ore shipments 322
- Consumption 313
- Imports 322
- Prices 313
- Production 315
- Resources, reserves 314, 322
- Shipments 313

MAGANIFEROUS ORES 319

MANGANESE 319

NATURAL GAS 322

NONFERROUS METALS 322

PIG IRON
- Canadian 311
- Capacity 310, 311
- Exports 310
- Imports 310
- Prices 312, 313
- Production 310, 311

PRICES
- Brick, refractory 321
- Coke 318
- Ferromanganese, 80 pct 320
- Ferrosilicon, 50 pct 320
- Iron ore 313
- Pig iron 312, 313
- Scrap 316, 317
- Spiegeleisen, 19 to 21 pct 320

PRODUCTION
- Canadian 311
- Chromite 320
- Coal 317
- Coke 319
- Ferrosilicon 321
- Iron ore 315
- Manganese ore 319
- Pig iron 310, 311
- Spiegeleisen 321

RESOURCES, RESERVES 314, 322

SCRAP 316, 317

SHIPMENTS
- Beneficiated ore 322
- Chromite ore 320
- Ferromanganese 321
- Iron ore 313
- Maganiferous ores 319
- Manganese ores 319

SPIEGELEISEN 320, 321

TAR AND PITCH 322

3 METAL FACTS SECTION

Production of Pig Iron in 22 Countries
U. S. Imports and Exports of Pig Iron
Number, Capacity, Materials Used—U. S. Blast Furnaces

WORLD PRODUCTION OF PIG IRON

(Net Tons in Thousands)

	1950*	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939
United States	65,000	54,206	61,912	60,117	46,515	54,919	62,866	62,770	60,903	56,667	47,399	38,877
Canada	2,465	2,367	2,335	2,152	1,525	1,976	2,012	1,930	2,156	1,708	1,448	936
United Kingdom	10,600	10,637	10,389	8,457	8,692	7,960	7,545	8,049	8,653	8,280	9,189	8,937
Belgium	4,200	4,130	4,346	3,109	2,393	802	780	1,801	1,398	1,572	1,976	3,362
Luxemburg	2,684	2,615	2,896	2,004	1,505	344	1,481	2,526	1,885	1,481	1,164	2,024
France	9,000	9,188	7,248	6,383	3,796	1,304	3,189	5,424	4,231	3,694	4,060	6,131
Netherlands	521	478	487	180	128	.....	.....	.....	.....	.....	305	364
Hungary	.....	.....	336	330	176	1	326	460	460	487	471	451
Germany†	10,411	7,870	8,394	2,491	2,425	1,550	14,737	17,606	17,021	17,012	15,383	19,269
Saar	1,801	1,743	1,252	721	271	.....	1,634	2,411	2,224	2,258	2,008	2,091
Austria	867	924	679	306	64	.....	.....	.....	.....	.....	.....	.....
Czechoslovakia	.....	.....	1,822	1,569	1,058	635	1,746	1,878	1,759	1,733	1,706	1,773
Poland	.....	.....	1,199	944	800	252	271	290	.....	.....	.....	1,108
Yugoslavia	225	211	.....	.....	.....	.....	.....	.....	.....	83	92	67
Rumania	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	150	148
Russia	19,500	16,980	15,750*	12,450*	11,250*	10,140*	16,800	11,100	7,700	14,300	16,500	16,810
Italy	691	490	680	425	228	83	341	802	1,077	1,229	1,239	1,212
Spain	733	693	562	551	540	519	607	643	592	591	639	822
Sweden	965	948	881	779	771	639	941	874	837	814	868	710
Japan‡	2,205	1,767	922	391	202	556	3,434	5,089	5,475	5,268	4,422	4,016
Australia**	1,354	1,171	1,384	1,329	1,204	1,252	1,462	1,486	1,745	1,653	1,357	1,279
Total	139,432	118,398	121,354	103,687	83,541	83,132	120,171	125,121	118,095	118,847	110,455	108,830

Includes ferroalloys made in the blast furnace.
* Estimate by THE IRON AGE.
† 1948 and 1949 figures do not include production in the Russian Zone. Saar and Austria are not included.
‡ Home islands, Korea and Manchuria in 1944 and previous years.
** Year ending June 30.

Source: American Iron and Steel Institute, Chambre Syndicale de la Siderurgie Francaise and Statistical Office of the United Nations

PIG IRON EXPORTS FROM THE UNITED STATES

Ranging from 1940 Through First 8 Months of 1950; in Short Tons

	1950*	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940
Argentina	.....	.....	.....	125	4,772	5,659	431	.....	336	.....	.....
Belgium & Luxembourg	.....	.....	.....	29,262	.....	7,790	.....	.....	.....	.....	3,537
Canada	4,223	19,164	6,520	9,524	11,789	6,106	8,984	7,673	1,691	5,117	30,496
Chile	40	863	.....	.....	.....	.....	2,331	1,229	578	2,119	.....
China	.....	.....	.....	.....	12,155	.....	.....	.....	.....	.....	8,290
Colombia	396	242	.....	.....	.....	.....	2,887	148	.....	441	.....
Costa Rica	.....	28	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cuba	135	111	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dominican Republic	140	182	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ecuador	.....	129	.....	.....	.....	.....	.....	.....	.....	.....	.....
France	.....	.....	.....	.....	14,000	14,000	.....	.....	.....	.....	.....
Greece	33	1,690	.....	.....	16,856	10,643	.....	.....	.....	.....	.....
Italy	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Korea	.....	8,346	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mexico	338	2,280	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Zealand	56	175	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nicaragua	.....	56	.....	.....	.....	.....	.....	.....	.....	.....	.....
Paraguay	.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....
Peru	.....	580	.....	.....	.....	.....	.....	.....	.....	.....	.....
Philippines	134	223	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sweden	.....	.....	.....	.....	24,082	22,066	.....	.....	.....	.....	11,883
Trinidad & Tobago	.....	11	.....	.....	.....	.....	.....	.....	.....	.....	.....
United Kingdom	10	46,990	.....	.....	.....	1,524	132,001	121,534	105,495	555,339	515,061
Uruguay	.....	235	.....	.....	3,366	3,078	1,202	2,557	.....	195	.....
U.S.S.R.	.....	.....	.....	.....	.....	.....	4,036	3,729	430	.....	.....
Other Countries	.....	.....	512	1,290	12,044	23,180	9,664	7,685	3,125	15,322	51,069
Total	5,505	81,310	7,032	40,201	99,064	94,046	161,536	144,555	111,655	578,533	620,336

* Eight months.

Source: Dept. of Commerce and AISI

U. S. IMPORTS OF PIG IRON

Ranging from 1940 Through First 8 Months of 1950; in Short Tons

	1950*	1949	1948	1947	1946	1945	1944	1943†	1941	1940
Netherlands	142,429	20,527	45,020	2,710	.....	.....	.....	.....	.....	.....
Belgium	6,160	15,698	32,809	.....	.....	.....	.....	.....	.....	.....
Australia	.....	19,599	26,901	.....	.....	.....	.....	336	3,367	.....
Germany	68,858	2,382	24,558	.....	.....	.....	.....	.....	.....	.....
Norway	1,984	145	23,920	9,482	.....	.....	.....	.....	.....	.....
Austria	18,135	5,145	18,594	281	.....	.....	.....	.....	.....	.....
France	14,944	340	17,876	.....	.....	.....	.....	.....	.....	.....
India	.....	23,078	16,100	.....	.....	.....	.....	500	.....	7,645
Canada	138,454	12,270	5,729	1,747	1,287	21,433	5,778	49	306	3,828
Italy	.....	.....	5,001	.....	.....	.....	.....	.....	.....	.....
United Kingdom	293	193	.....	.....	1,528	.....	.....	560	.....	.....
French Morocco	.....	.....	.....	.....	.....	.....	.....	165	.....	.....
Mexico	.....	.....	.....	.....	11,248	.....	.....	.....	.....	.....
Other Countries	2,704	435	2,192	18,404	28	.....	.....	.....	.....	.....
Total	383,961	99,802	218,700	32,624	14,091	21,433	5,778	1,610	3,675	11,471

* Nine months.
† No imports for 1942.

Source: U. S. Dept. of Commerce

BLAST FURNACES IN THE U. S.

Producing pig iron, ferroalloys*

Massachusetts	1	Texas	3
New York	16	Ohio	50
Pennsylvania	75	Indiana	22
Maryland	8	Illinois	22
Virginia	1	Michigan	9
West Virginia	4	Minnesota	3
Kentucky	3	Colorado	4
Tennessee	2	Utah	5
Alabama	20	California	2
		Total	247

Capacity on tonnage basis, as of Jan. 1, 1949—71,497,540 net tons.
*As of Jan. 1, 1950

Source: American Iron & Steel Institute

BLAST FURNACE CAPACITY*

Net Ton Totals for Active Units

	Pig Iron	Ferro-alloys	Charcoal Iron	Total
1938	55,618,752	1,060,416	103,040	56,782,208
1939	55,162,374	1,060,416	103,040	56,325,830
1940	54,635,740	992,320	95,580	55,723,640
1941	56,522,370	980,660	106,560	57,609,590
1942	59,211,850	1,075,570	106,560	60,393,980
1943	62,859,330	967,000	107,200	63,933,530
1944	66,344,780	990,300	56,190	67,391,270
1945	66,256,810	992,600	64,480	67,313,890
1946	66,311,410	996,700	32,480	67,340,590
1947	64,674,020	1,002,700	32,480	65,709,200
1948	66,301,610	1,097,000	40,320	67,438,930
1949	69,435,130	1,066,400	40,320	70,541,850
1950	70,348,920	1,108,300	40,320	71,497,540

* Capacities are for year beginning Jan. 1. Capacities of furnaces long idle not included.

Source: American Iron & Steel Institute

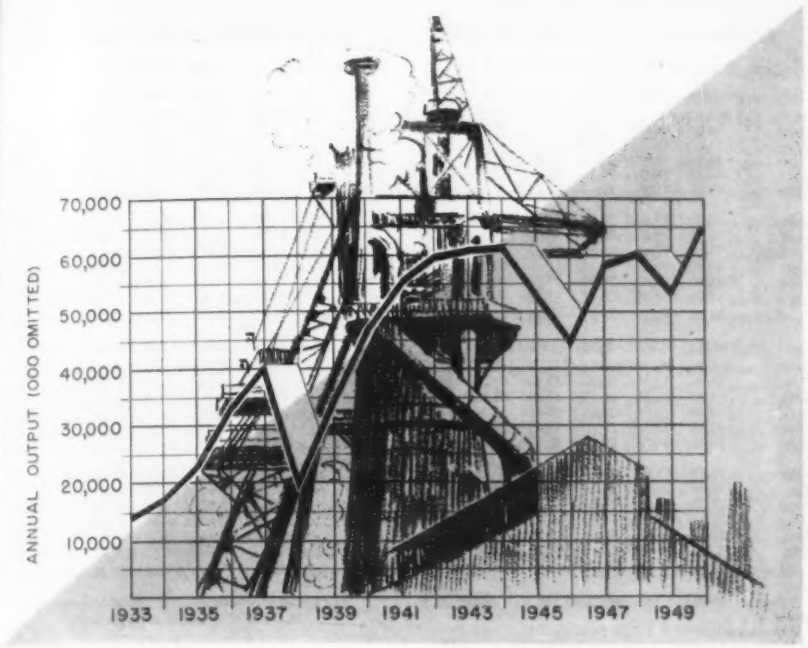
BLAST FURNACE MATERIALS

Net Tons Used in 1949 for pig iron

Iron Ore	93,608,003
Scrap*	2,278,701
Mill Cinder, Scale, etc.	6,572,082
Total	102,457,786

* Scrap used less scrap produced.

Source: American Iron & Steel Institute



UNITED STATES PIG IRON PRODUCTION

Blast Furnace, Thousands of Net Tons, Includes Ferroalloys, Not Charcoal Iron

	Jan.	Feb.	Mar.	April	May	June	First Half	July	Aug.	Sept.	Oct.	Nov.	Dec.	Second Half	Year
1901	1301	1270	1433	1408	1500	1476	8,388	1523	1496	1456	1548	1526	1418	8,967	17,355
1910	2922	2685	2932	2782	2677	2537	16,535	2407	2360	2303	2344	2139	1991	13,544	30,079
1920	3377	3337	3781	3068	3344	3409	20,316	3435	3525	3504	3688	3287	3029	20,468	40,784
1921	2705	2169	1788	1338	1368	1193	10,559	969	1069	1104	1396	1585	1847	7,970	18,529
1922	1842	1826	2280	2321	2583	2644	13,496	2694	2034	2278	2956	3191	3457	16,610	30,106
1923	3617	3353	3947	3976	4332	4117	23,342	4119	3864	3501	3527	3241	3272	21,524	44,866
1924	3382	3441	3883	3622	2929	2269	19,526	1999	2114	2299	2774	2811	3318	15,315	34,841
1925	3774	3600	3992	3650	3283	2995	21,294	2984	3030	3052	3386	3386	3640	19,478	40,772
1926	3714	3274	3855	3864	3900	3623	22,230	3610	3586	3512	3734	3626	3461	21,529	43,759
1927	3477	3294	3901	3832	3798	3461	21,763	3305	3300	3108	3118	2966	3020	18,817	40,580
1928	3214	3248	3585	3567	3678	3452	20,744	3441	3514	3429	3779	3698	3774	21,635	42,379
1929	3855	3591	4180	4102	4366	4163	24,237	4239	4218	3918	4019	3563	3177	23,133	47,360
1930	3166	3180	3636	3564	3620	3286	20,452	2956	2827	2550	2425	2092	1866	14,716	35,168
1931	1920	1912	2276	2261	2233	1836	12,438	1639	1435	1309	1314	1235	1098	8,030	20,468
1932	1089	1080	1094	954	877	704	5,788	640	582	663	721	707	612	3,925	9,713
1933	637	621	607	699	993	1417	4,974	2007	2053	1705	1519	1215	1323	9,822	14,796
1934	1361	1416	1813	1934	2288	2162	10,974	1372	1181	1006	1065	1072	1151	6,847	17,821
1935	1654	1802	1983	1863	1934	1739	10,975	1702	1972	1990	2215	2315	2360	12,554	23,529
1936	2269	2042	2285	2693	2966	2896	15,151	2905	3037	3058	3351	3301	3489	19,141	34,292
1937	3597	3359	3875	3799	3961	3481	22,072	3919	4039	3819	3239	2248	1669	18,933	41,005
1938	1601	1454	1627	1541	1406	1189	8,818	1346	1673	1882	2298	2543	2476	12,218	21,036
1939	2436	2307	2682	2303	1924	2373	14,025	2639	2979	3224	4063	4167	4220	21,292	35,317
1940	4032	3311	3270	3137	3514	3819	21,083	4054	4238	4177	4448	4403	4548	25,866	46,949
1941	4664	4198	4704	4334	4600	4553	27,053	4771	4791	4717	4856	4703	5012	28,850	55,903
1942	4971	4500	5055	4896	5073	4935	29,430	5051	5009	4937	5237	4966	5201	30,552	59,982
1943	5137	4766	5314	5035	5178	4836	30,343	5023	5316	5226	5324	5096	5213	31,434	61,777
1944	5283	5091	5442	5251	5351	5064	31,482	5157	5210	4988	5200	4904	4998	30,457	61,939
1945	4945	4563	5228	4786	5016	4605	29,142	4801	4249	4227	3388	4026	4323	25,025	54,167
1946	2645	1148	4424	3814	2275	3692	17,807	4705	4698	4687	4815	4435	3992	27,572	45,379
1947	5071	4550	5123	4830	5081	4810	29,480	4585	4917	4801	5226	5015	5177	29,723	59,209
1948	5195	4838	5019	3840	5077	4990	28,961	4899	5254	5207	5520	5399	5955	31,888	60,849
1949	5725	5223	5820	5531	5517	4819	32,642	4173	4477	4350	612	2721	5231	21,564	54,206
1950	5294	4173	4801	5577	5855	5633	31,133	5879	5770	5697	5924	*5950	*5900	*35,020	*66,153

*Preliminary figure, subject to revision.

Source: 1901 to 1942, THE IRON AGE; October 1942 to 1949, AISI

PIG IRON PRODUCTION BY STATES

In U. S., Short Tons in Thousands, Includes 17 Major Producing States

	1949	1948	1947	1946	1945
Pennsylvania	15,037	17,742	17,583	13,251	16,171
Ohio	10,640	12,471	12,317	9,534	11,259
Indiana	5,991	6,493	6,481	4,829	5,982
Illinois	4,913	5,513	5,600	4,357	5,045
Md., W. Virginia	4,383	4,240	3,662	2,949	3,519
Alabama	3,663	4,013	3,929	3,149	3,582
Mass., New York	3,541	3,875	3,869	2,780	3,295
Colo., Utah, Calif.	2,154	2,379	2,245	1,381	1,842
Mich., Minn.	2,002	2,101	1,924	1,893	1,921
Ky., Tenn., Tex.	1,089	1,228	818	656	806

Source: American Iron & Steel Institute

CANADIAN STATISTICS

PIG IRON PRODUCTION

Includes Ferroalloys, in Net Tons

	Pig Iron 1950	Pig Iron 1949	Pig Iron 1948
Jan.	190,432	183,074	160,042
Feb.	157,200	172,724	151,123
Mar.	174,944	202,130	172,675
Apr.	185,259	180,740	170,785
May	195,893	202,148	193,305
June	198,462	194,255	183,763
July	194,018	175,381	187,940
Aug.	201,830	180,115	191,383
Sept.	199,415	168,436	182,465
Oct.	200,000*	166,020	186,424
Nov.	200,000*	157,327	186,771
Dec.	200,000*	172,002	174,233
Total	2,297,451*	2,154,352	2,120,909

	Ferroalloys 1950	Ferroalloys 1949	Ferroalloys 1948
Jan.	9,961	21,931	17,125
Feb.	9,652	21,713	11,823
Mar.	17,157	22,457	14,293
Apr.	14,627	24,427	14,474
May	12,707	20,652	18,436
June	15,350	19,264	13,502
July	16,118	14,280	12,939
Aug.	19,018	12,562	12,700
Sept.	17,765	12,250	12,318
Oct.	18,000*	15,456	19,489
Nov.	18,000*	14,758	17,594
Dec.	18,000*	11,853	23,706
Total	167,337*	211,603	250,659†

* Estimate.

† Total figures includes additional tonnage for which monthly data are not reported.

Source: Dominion Bureau of Statistics

BLAST FURNACE PRODUCTION

Net Tons

Year	Pig Iron	Ferro-alloys	Total Pig Iron and Ferro-alloys
1923	985,620	33,545	1,019,165
1924	664,186	29,624	693,810
1925	638,844	28,794	667,638
1926	826,003	64,305	890,308
1927	792,624	62,977	855,601
1928	1,162,254	50,267	1,212,521
1929	1,220,961	89,611	1,310,572
1930	836,839	73,049	909,888
1931	470,442	52,375	522,817
1932	161,425	18,100	179,525
1933	254,592	33,737	288,329
1934	455,789	37,055	492,844
1935	678,302	61,182	740,484
1936	759,618	87,679	847,297
1937	1,006,717	91,931	1,098,648
1938	789,710	59,720	849,430
1939	846,418	85,531	931,949
1940	1,309,161	151,661	1,460,822
1941	1,528,054	213,218	1,741,272
1942	1,975,015	213,636	2,188,651
1943	1,758,265	218,687	1,852,626
1944	1,852,626	182,428	4,012,008
1945	1,777,958	186,978	1,964,936
1946	1,403,758	116,995	1,520,753
1947	1,969,847	149,832	2,119,679
1948	2,120,909	250,659	2,371,568
1949	2,154,352	211,603	2,365,955
1950*	2,257,450	183,355	2,440,705

* December output estimated.

Source: Dominion Bureau of Statistics

PIG IRON CAPACITY, OUTPUT

Excluding Ferroalloys, Net Tons

	Capacity	Production	Percent of Capacity
1936	1,450,875	759,618	52.3
1937	1,450,875	1,006,717	69.3
1938	1,450,875	789,710	54.4
1939	1,450,875	846,418	58.3
1940	1,450,875	1,309,161	90.2
1941	1,815,875	1,528,054	84.1
1942	2,123,329	1,975,015	93.0
1943	2,756,166	1,758,265	63.7
1944	2,770,760	1,852,626	66.8
1945	2,770,760	1,777,958	64.1
1946	2,770,760	1,403,758	50.6
1947	2,745,760	1,969,847	71.7
1948	2,745,760	2,120,909	77.2
1949	2,754,760	2,154,352	78.4
1950	2,754,760	2,257,450*	82.2

* December output estimated.

Source: Dominion Bureau of Statistics

GRANITE CITY, ILL., PIG IRON

No. 2 Foundry, Gross Ton, at Furnace

	1929	1934	1937	1938	1939	1940*
Jan.	$20.75	$17.50	$21.00	$24.00	$21.00	$23.00
Feb.	20.75	17.50	21.25	24.00	21.00	23.00
Mar.	20.75	17.50	23.60	24.00	21.00	23.00
Apr.	20.75	17.75	24.00	24.00	21.00	23.00
May	20.75	18.50	24.00	24.00	21.00	23.00
June	20.75	18.50	24.00	23.00	21.00	23.00
July	20.75	18.50	24.00	20.00	21.00	23.00
Aug.	20.69	18.50	24.00	20.00	21.00	23.00
Sept.	20.50	18.50	24.00	20.25	22.00	23.00
Oct.	20.50	18.50	24.00	21.00	23.00	23.00
Nov.	20.50	18.50	24.00	21.00	23.00	23.00
Dec.	20.50	18.50	24.00	21.00	23.00	23.50
Average	20.66	18.19	23.49	22.20	21.59	23.04

	1945*	1946	1947	1948	1949	1950
Jan.	$24.00	$25.75	$30.50	$39.25	$48.40	$48.40
Feb.	24.50	25.75	30.50	40.00	48.40	48.40
Mar.	25.00	26.13	32.00	40.00	48.40	48.40
Apr.	25.00	26.50	33.50	40.00	48.40	48.40
May	25.00	26.50	33.50	41.43	48.40	48.40
June	25.00	26.50	33.50	45.75	48.40	48.40
July	25.00	26.50	34.60	45.75	48.40	48.40
Aug.	25.00	26.50	36.63	47.34	48.40	48.40
Sept.	25.00	26.50	37.00	48.40	48.40	48.40
Oct.	25.30	26.50	37.00	48.40	48.40	51.40
Nov.	25.75	26.50	37.00	48.40	48.40	51.40
Dec.	25.75	29.70	37.00	48.40	48.40	53.65
Average	25.02	27.44	34.39	44.42	48.40	49.34

† Prior to September 1933, St. Louis prices are given.
* Price unchanged at $24.00 from 1941 through 1944.

BIRMINGHAM PIG IRON PRICES

No. 2 Foundry Grade, Per Gross Ton

	1929	1936	1937	1938	1939*	1941**
Jan.	$16.50	$15.50	$17.38	$20.38	$17.38	$19.38
Feb.	16.50	15.50	17.68	20.38	17.38	19.38
Mar.	16.00	15.50	19.93	20.38	17.38	19.89
Apr.	15.40	15.50	20.38	20.38	17.38	20.38
May	15.00	15.50	20.38	20.38	17.38	20.38
June	15.00	15.50	20.38	19.58	17.38	20.38
July	14.63	15.50	20.38	16.38	17.38	20.38
Aug.	14.50	15.88	20.38	16.38	17.38	20.38
Sept.	14.50	15.88	20.38	16.63	18.38	20.38
Oct.	14.50	15.88	20.38	17.38	19.38	20.38
Nov.	14.50	16.13	20.38	17.38	19.38	20.38
Dec.	14.50	16.88	20.38	17.38	19.38	20.38
Average	15.13	15.76	19.87	18.58	17.96	20.17

	1945**	1946	1947	1948	1949	1950
Jan.	$20.38	$22.13	$26.88	$37.38	$43.38	$39.38
Feb.	20.86	22.13	26.88	37.38	43.38	42.38
Mar.	21.38	22.51	29.13	37.38	43.38	42.38
Apr.	21.38	22.88	29.88	37.38	43.38	42.38
May	21.38	22.88	29.88	38.38	39.71	42.38
June	21.38	24.88	29.88	39.38	39.38	42.38
July	21.38	24.88	31.28	31.04	39.38	42.38
Aug.	21.38	24.88	34.13	43.38	39.38	42.38
Sept.	21.38	24.88	34.88	43.38	39.38	42.67
Oct.	21.68	24.88	34.88	43.38	39.38	45.88
Nov.	22.13	24.88	34.88	43.38	39.38	45.88
Dec.	22.13	26.88	34.60	43.38	39.38	48.88
Average	21.40	24.06	31.43	40.43	40.74	43.53

† Subject to 38c a ton deduction for 0.70 phosphorus and over.
* Price unchanged at $18.38 through 1940.
** Price unchanged at $20.38 from 1942 through 1944.

NO. 2 FOUNDRY PIG IRON PRICES

Mahoning, Shenango Valley, Per Gross Ton

	1929	1934	1936	1937	1938	1939
Jan.	$17.50	$17.50	$19.50	$21.00	$24.00	$21.00
Feb.	17.50	17.50	19.50	21.25	24.00	21.00
Mar.	17.75	17.50	19.50	23.60	24.00	21.00
Apr.	18.00	17.75	19.50	24.00	24.00	21.00
May	18.50	18.50	19.50	24.00	24.00	21.00
June	18.50	18.50	19.50	24.00	23.20	21.00
July	18.50	18.50	19.50	24.00	20.00	21.00
Aug.	18.50	18.50	19.50	24.00	20.00	21.00
Sept.	18.50	18.50	19.50	24.00	20.25	22.00
Oct.	18.50	18.50	19.50	24.00	21.00	23.00
Nov.	18.50	18.50	19.75	24.00	21.00	23.00
Dec.	18.50	18.50	20.25	24.00	21.00	23.00
Average	18.23	18.19	19.60	23.49	22.20	21.50

	1940*	1945*	1946	1947	1948**	1950
Jan.	$23.00	$24.00	$25.75	$30.50	$39.37	$46.50
Feb.	23.00	24.50	25.75	30.50	39.50	46.50
Mar.	23.00	25.00	26.13	33.50	39.50	46.50
Apr.	23.00	25.00	26.50	33.50	39.50	46.50
May	23.00	25.00	26.50	33.50	39.50	46.50
June	23.00	25.00	26.50	33.50	39.50	46.50
July	23.00	25.00	26.50	34.70	42.50	48.50
Aug.	23.00	25.00	26.50	36.50	43.50	48.50
Sept.	23.00	25.00	26.50	36.50	43.50	47.50
Oct.	23.00	25.30	26.50	36.50	46.12	49.50
Nov.	23.00	25.75	26.50	36.50	46.50	49.50
Dec.	23.40	25.75	30.10	36.70	46.50	52.50
Average	23.03	25.02	27.64	34.36	42.12	47.50

* Price unchanged at $24.00 from 1941 through 1944.
** Price unchanged at $46.50 through 1949.

COMPOSITE PIG IRON PRICE

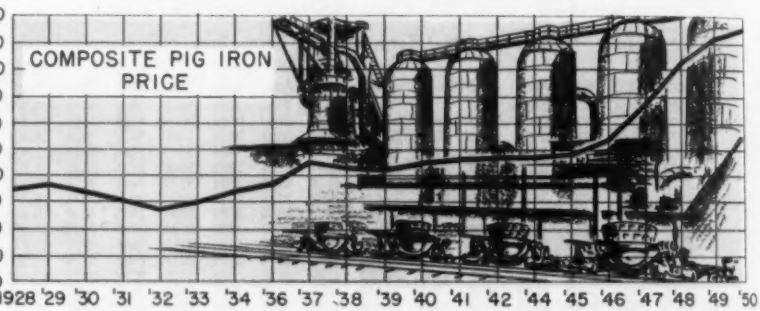
Average of THE IRON AGE quotations on basic pig iron at Valley furnaces and foundry iron at Chicago, Birmingham, Buffalo, Valley and Philadelphia, in gross tons.

	1929	1930	1931	1932	1933	1934
Jan.	$18.43	$18.19	$15.90	$14.68	$13.56	$16.90
Feb.	18.38	18.02	15.90	14.51	13.56	16.90
Mar.	18.36	17.75	15.71	14.45	13.56	16.90
Apr.	18.52	17.73	15.79	14.35	13.76	17.07
May	18.70	17.60	15.76	14.12	14.48	17.90
June	18.65	17.48	15.62	14.01	15.01	17.90
July	18.48	17.16	15.56	13.76	15.50	17.90
Aug.	18.39	16.90	15.51	13.69	16.09	17.90
Sept.	18.27	16.70	15.44	13.64	16.71	17.90
Oct.	18.33	16.31	15.21	13.63	16.61	17.90
Nov.	18.36	16.21	14.97	13.59	16.61	17.90
Dec.	18.24	15.95	14.86	13.56	16.90	17.90
Average	18.43	17.17	15.51	14.00	15.20	17.58

	1936	1937	1938	1939	1940	1941*
Jan.	$18.84	$20.25	$23.25	$20.61	$22.61	$23.45
Feb.	18.84	20.50	23.25	20.61	22.61	23.45
Mar.	18.84	22.85	23.25	20.61	22.61	23.53
Apr.	18.84	23.25	23.25	20.61	22.61	23.61
May	18.84	23.25	23.25	20.61	22.61	23.61
June	18.84	23.25	22.98	20.61	22.61	23.61
July	18.84	23.25	19.61	20.61	22.61	23.61
Aug.	18.73	23.25	19.61	20.61	22.61	23.61
Sept.	18.73	23.25	19.82	21.61	22.61	23.61
Oct.	18.73	23.25	20.57	22.61	22.61	23.61
Nov.	18.98	23.25	20.61	22.61	22.61	23.61
Dec.	19.73	23.25	20.61	22.61	22.95	23.61
Average	18.90	22.74	21.67	21.19	22.64	23.58

	1945*	1946	1947	1948	1949	1950
Jan.	$23.61	$25.37	$30.14	$39.83	$46.79	$45.98
Feb.	24.11	25.37	30.15	40.27	46.74	46.38
Mar.	24.61	25.75	32.92	40.32	46.74	46.38
Apr.	24.61	26.12	33.15	40.11	46.64	46.38
May	24.61	26.45	33.15	40.33	45.97	46.38
June	24.61	28.13	33.15	40.51	45.91	46.38
July	24.61	28.13	34.52	42.25	45.91	46.38
Aug.	24.61	28.13	36.84	44.34	45.91	46.56
Sept.	24.61	28.13	36.95	44.96	45.90	47.18
Oct.	24.91	28.13	36.95	46.63	45.88	49.29
Nov.	25.37	28.13	37.04	48.84	45.88	49.69
Dec.	25.37	29.84	37.24	48.91	45.88	52.50
Average	24.61	27.29	34.35	42.94	46.18	47.85

* Price unchanged at $23.61 from 1942 through 1944.



CHICAGO CHARCOAL PIG IRON

Prices Per Gross Ton

	1929	1938	1939	1940	1941*	1943**
Jan.	$27.04	$30.24	$28.34	$30.34	$30.34	$31.34
Feb.	27.04	30.24	28.34	30.34	30.34	31.34
Mar.	27.04	30.24	28.34	30.34	30.34	31.34
Apr.	27.04	30.32	28.34	30.34	30.34	31.34
May	27.04	30.34	28.34	30.34	31.09	31.34
June	27.04	30.34	28.34	30.34	31.34	31.34
July	27.04	28.34	28.34	30.34	31.34	31.34
Aug.	27.04	28.34	28.34	30.34	31.34	31.34
Sept.	27.04	28.34	29.34	30.34	31.34	37.34
Oct.	27.04	28.34	30.34	30.34	31.34	37.34
Nov.	27.04	28.34	30.34	30.34	31.34	37.34
Dec.	27.04	28.34	30.34	30.34	31.34	37.34
Average	27.04	29.31	28.92	30.34	30.99	33.34

	1945**	1946	1947	1948	1949	1950
Jan.	$37.34	$42.34	$42.99	$61.21	$73.78	$68.56
Feb.	37.34	42.34	42.99	62.46	73.78	68.56
Mar.	41.09	42.34	45.24	62.46	73.78	68.56
Apr.	42.34	42.34	45.99	62.46	73.78	68.56
May	42.34	42.34	45.99	63.27	73.78	68.56
June	42.34	42.34	45.99	65.55	69.35	68.56
July	42.34	42.34	47.01	67.55	68.24	68.56
Aug.	42.34	42.34	49.49	69.55	68.24	68.56
Sept.	42.34	42.34	49.49	69.55	68.50	69.06
Oct.	42.34	42.34	52.77	73.78	68.56	70.56
Nov.	42.34	42.34	56.04	73.78	68.56	70.56
Dec.	42.34	42.60	56.04	73.78	68.56	70.56
Average	41.40	42.36	48.34	67.11	70.74	69.10

* Price unchanged at $31.44 through 1942.
** Price unchanged at $37.34 through 1944.

BASIC PIG IRON PRICES

Mahoning, Shenango Valley, Gross Ton

	1929	1934	1936	1937	1938	1939
Jan.	$17.50	$17.00	$19.00	$20.50	$23.50	$20.50
Feb.	17.50	17.00	19.00	20.75	23.50	20.50
Mar.	17.50	17.00	19.00	23.10	23.50	20.50
Apr.	17.90	17.25	19.00	23.50	23.50	20.50
May	18.38	18.00	19.00	23.50	23.50	20.50
June	18.50	18.00	19.00	23.50	22.70	20.50
July	18.50	18.00	19.00	23.50	19.50	20.50
Aug.	18.50	18.00	19.00	23.50	19.50	20.50
Sept.	18.50	18.00	19.00	23.50	19.75	21.50
Oct.	18.50	18.00	19.00	23.50	20.50	22.50
Nov.	18.50	18.00	19.25	23.50	20.50	22.50
Dec.	18.50	18.00	20.00	23.50	20.50	22.50
Average	18.19	17.69	19.10	22.99	21.70	21.09

	1940*	1945*	1946	1947	1948**	1950
Jan.	$22.50	$23.50	$25.25	$30.00	$38.87	$46.00
Feb.	22.50	24.00	25.25	30.00	39.00	46.00
Mar.	22.50	24.50	25.63	33.00	39.00	46.00
Apr.	22.50	24.50	26.00	33.00	39.00	46.00
May	22.50	24.50	26.00	33.00	39.00	46.00
June	22.50	24.50	28.00	33.00	39.00	46.00
July	22.50	24.50	28.00	34.20	42.00	48.00
Aug.	22.50	24.50	28.00	36.00	43.00	48.00
Sept.	22.50	24.50	28.00	36.00	43.00	48.75
Oct.	22.50	24.80	28.00	36.00	45.62	48.00
Nov.	22.50	25.25	28.00	36.00	48.00	48.00
Dec.	22.90	25.25	29.60	36.20	48.00	52.00
Average	22.53	24.52	27.14	34.78	41.62	47.06

* Price unchanged at $23.50 from 1941 through 1944.
** Price unchanged at $46.00 through 1949.

CHICAGO FOUNDRY PIG IRON

No. 2, Per Gross Ton, at Furnace

	1929	1934	1936	1937	1938	1940*
Jan.	$20.00	$17.50	$19.50	$21.00	$24.00	$23.00
Feb.	20.00	17.50	19.50	21.25	24.00	23.00
Mar.	20.00	17.50	19.50	23.60	24.00	23.00
Apr.	20.00	17.75	19.50	24.00	24.00	23.00
May	20.00	18.50	19.50	24.00	24.00	23.00
June	20.00	18.50	19.50	24.00	23.20	23.00
July	20.00	18.50	19.50	24.00	20.00	23.00
Aug.	20.00	18.50	19.50	24.00	20.00	23.00
Sept.	20.00	18.50	19.50	24.00	20.25	23.00
Oct.	20.00	18.50	19.50	24.00	21.00	23.00
Nov.	20.00	18.50	19.75	24.00	21.00	23.00
Dec.	20.00	18.50	20.50	24.00	21.00	23.40
Average	20.00	18.19	19.60	23.49	22.20	23.03

	1945*	1946	1947	1948	1949	1950
Jan.	$24.00	$25.75	$30.50	$38.75	$46.50	$46.50
Feb.	24.50	25.75	30.50	39.00	46.50	46.50
Mar.	25.00	26.13	33.00	39.00	46.50	46.50
Apr.	25.00	26.50	33.00	39.00	46.50	46.50
May	25.00	26.50	33.00	39.00	46.50	46.50
June	25.00	28.50	33.00	39.00	46.50	46.50
July	25.00	28.50	34.20	42.00	46.50	46.50
Aug.	25.00	28.50	36.00	43.00	46.50	46.50
Sept.	25.00	28.50	36.00	43.00	46.50	47.50
Oct.	25.30	28.50	36.00	46.50	46.50	49.50
Nov.	25.75	28.50	36.00	46.50	46.50	49.50
Dec.	25.75	30.10	36.40	46.50	46.50	52.50
Average	25.02	27.64	34.80	41.77	46.50	47.58

* Price unchanged at $24.00 from 1941 through 1944.

BUFFALO FOUNDRY PIG IRON

No. 2 Grade, Per Gross Ton, at Furnace

	1929	1934	1937	1938	1939	1940*
Jan.	$18.00	$17.50	$21.00	$24.00	$21.00	$23.00
Feb.	18.39	17.50	21.25	24.00	21.00	23.00
March	18.50	17.50	23.60	24.00	21.00	23.00
April	18.50	17.50	24.00	24.00	21.00	23.00
May	18.50	18.50	24.00	24.00	21.00	23.00
June	18.75	18.50	24.00	23.20	21.00	23.00
July	19.50	18.50	24.00	20.00	21.00	23.00
Aug.	19.50	18.50	24.00	20.00	21.00	23.00
Sept.	19.50	18.50	24.00	20.13	22.00	23.00
Oct.	19.50	18.50	24.00	20.88	23.00	23.00
Nov.	19.50	18.50	24.00	21.00	23.00	23.00
Dec.	19.50	18.50	24.00	21.00	23.00	23.40
Average	18.97	18.17	23.40	22.18	21.59	23.03

	1945*	1946	1947	1948	1949	1950
Jan.	$24.00	$25.75	$30.50	$40.37	$47.28	$46.50
Feb.	24.50	25.75	30.50	42.12	47.00	46.50
March	25.00	26.13	32.38	42.45	47.00	46.50
April	25.00	26.50	33.00	41.19	46.75	46.50
May	25.00	26.50	33.00	41.37	46.50	46.50
June	25.00	28.50	33.00	41.44	46.50	46.50
July	25.00	28.50	34.20	42.08	46.50	46.50
Aug.	25.00	28.50	37.37	44.90	46.50	46.50
Sept.	25.00	28.50	37.18	45.87	46.50	47.25
Oct.	25.30	28.50	37.00	47.12	46.50	49.50
Nov.	25.75	28.50	37.75	47.50	46.50	49.50
Dec.	25.75	30.10	38.00	47.50	46.50	52.50
Average	25.02	27.64	34.49	43.65	46.67	47.56

* Price unchanged at $24.00 from 1941 through 1944.

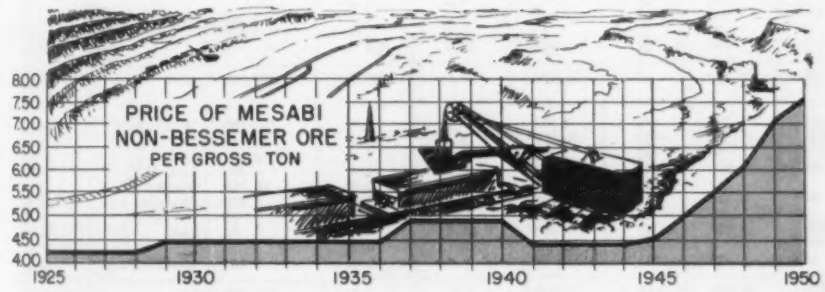
MALLEABLE PIG IRON PRICES

Per Gross Ton, Mahoning, Shenango Valley

	1929	1934	1936	1937	1938	1939
Jan.	$18.00	$17.50	$19.50	$21.00	$24.00	$21.00
Feb.	18.00	17.50	19.50	21.25	24.00	21.00
Mar.	18.25	17.50	19.50	23.60	24.00	21.00
Apr.	18.50	17.75	19.50	24.00	24.00	21.00
May	19.00	18.50	19.50	24.00	24.00	21.00
June	19.00	18.50	19.50	24.00	23.00	21.00
July	19.00	18.50	19.50	24.00	20.00	21.00
Aug.	19.00	18.50	19.50	24.00	20.00	21.00
Sept.	19.00	18.50	19.50	24.00	20.25	22.00
Oct.	19.00	18.50	19.50	24.00	21.00	23.00
Nov.	19.00	18.50	19.75	24.00	21.00	23.00
Dec.	19.00	18.50	20.50	24.00	21.00	23.00
Average	18.73	18.19	19.60	23.49	22.20	21.59

	1940*	1945*	1946	1947	1948**	1950
Jan.	$23.00	$24.00	$25.75	$30.50	$39.50	$46.50
Feb.	23.00	24.50	25.75	30.50	39.50	46.50
Mar.	23.00	25.00	26.13	33.50	39.50	46.50
Apr.	23.00	25.00	26.50	33.50	39.50	46.50
May	23.00	25.00	26.50	33.50	39.50	46.50
June	23.00	25.00	26.50	33.50	39.50	46.50
July	23.00	25.00	28.50	34.70	42.50	46.50
Aug.	23.00	25.00	28.50	36.50	43.50	46.50
Sept.	23.00	25.00	28.50	36.50	43.50	47.50
Oct.	23.00	25.30	28.50	36.50	46.12	49.50
Nov.	23.00	25.75	28.50	36.50	46.50	49.50
Dec.	23.50	25.75	30.10	36.70	46.50	52.50
Average	23.04	25.02	27.48	34.36	42.13	47.58

* Price unchanged at $24.00 from 1941 through 1944.
** Price unchanged at $46.50 through 1949.



LAKE SUPERIOR IRON ORES

Avge. Analyses, Combined Ranges, Grades

Year	Analyses, Pct: Iron, Natural	Phos.	Silica	Mang.	Moisture
1949	50.39	0.096	9.72	0.78	11.12
1948	50.49	0.093	9.30	0.76	11.36
1947	50.91	0.093	9.09	0.75	11.28
1946	51.32	0.087	8.83	0.74	11.22
1945	51.69	0.089	8.52	0.72	10.96
1944	51.72	0.088	8.42	0.74	11.02
1943	51.58	0.091	8.32	0.82	11.06
1942	51.65	0.089	8.21	0.79	10.98
1941	51.83	0.085	8.18	0.78	11.01
1940	52.09	0.085	8.00	0.77	10.93
1939	51.75	0.085	8.27	0.76	10.73
1938	51.90	0.089	8.25	0.81	10.13
1937	51.53	0.091	8.27	0.82	11.31
1936	51.45	0.091	8.62	0.81	10.92
1935	51.44	0.093	8.93	0.79	10.75
1934	51.49	0.087	8.93	0.76	10.66
1933	51.85	0.090	8.98	0.71	10.47
1932	52.16	0.099	9.05	0.69	9.92
1931	51.53	0.087	8.60	0.80	10.84
1930	51.33	0.095	8.70	0.82	10.92

Source: Lake Superior Iron Ore Assn.

LAKE SUPERIOR IRON ORES

Per Gross Ton at Lower Lake Ports

BESSEMER ORES

	Guarantee: Iron Natural	Guarantee: Phosphorus Dry	Price: Old Range	Price: Mesabi
1915	55.00	0.045	$3.75	$3.45
1916	55.00	0.045	4.45	4.20
1917	55.00	0.045	5.95	5.70
1918 to July 1	55.00	0.045	5.95	5.70
1918–July 1 to Sept. 30	55.00	0.045	6.40	6.15
1918–Oct. 1 on	55.00	0.045	6.65	6.40
1919	55.00	0.045	6.45	6.20
1920	55.00	0.045	7.45	7.20
1921	55.00	0.045	6.45	6.20
1922	55.00	0.045	5.95	5.70
1923	55.00	0.045	6.45	6.20
1924	55.00	0.045	4.65	5.40
1925 through 1928	51.50	0.045	4.55	4.40
1929 through 1936	51.50	0.045	4.80	4.65
1937 to Apr. 15, 1940	51.50	0.045	5.25	5.10
1940–Apr. 16 on	51.50	0.045	4.75	4.80
1941 through 1944	51.50	0.045	4.75	4.60
1945 to June 24, 1946	51.50	0.045	4.95	4.70
1946–June 24 to Dec. 31	51.50	0.045	5.45	5.20
1947 to Apr. 1, 1948	51.50	0.045	5.95	5.70
1948–Apr. 1 on	51.50	0.045	6.60	6.35
1949	51.50	0.045	7.60	7.35
1950 Feb. 1 to Dec. 1	51.50	0.045	8.10	7.85
1950 Dec. 1 on	51.50	0.045	8.70	8.45

NON-BESSEMER ORES

	Guarantee: Iron Natural	Price: Old Range	Price: Mesabi	Price: High Phosphorus
1915	51.50	$3.00	$2.80	....
1916	51.50	3.70	3.55	....
1917	51.50	5.20	5.05	....
1918 to July 1	51.50	5.20	5.05	....
1918–July 1 to Sept. 30	51.50	5.65	5.50	....
1918–Oct. 1 on	51.50	5.90	5.75	....
1919	51.50	5.70	5.55	$5.35
1920	51.50	6.70	6.55	6.35
1921	51.50	5.70	5.55	5.35
1922	51.50	5.20	5.05	4.85
1923	51.50	5.70	5.55	5.35
1924	51.50	4.90	4.75	4.55
1925 through 1928	51.50	4.40	4.25	4.15
1929 through 1936	51.50	4.65	4.50	4.40
1937 to Apr. 15, 1940	51.50	5.10	4.95	4.85
1940–Apr. 16 on	51.50	4.60	4.45	4.35
1941 through 1944	51.50	4.60	4.45	4.35
1945 to June 24, 1946	51.50	4.80	4.55	4.85
1946–June 24 to Dec. 31	51.50	5.30	5.05	5.05
1947 to Apr. 1, 1948	51.50	5.80	5.55	5.85
1948–Apr. 1 on	51.50	6.45	6.20	6.20
1949	51.50	7.45	7.20	7.20
1950 Feb.1 to Dec. 1	51.50	7.95	7.70	7.70
1950 Dec. 1 on	51.50	8.55	8.30	8.30

SHIPMENTS OF IRON ORE

Lake Superior Shipments, Gross Tons

1950	*76,300,000
1949	69,556,269
1948	82,655,757
1947	77,210,278
1946	58,975,000
1945	75,207,000
1944	81,039,000
1943	85,116,000
1942	92,070,000
1941	79,941,000
1940	63,306,000
1939	44,984,000
1938	19,353,000
1937	61,973,000
1936	44,746,000
1935	28,214,000
1934	21,841,000
1933	21,455,000
1932	3,563,000
1931	23,281,000

Source: Lake Superior Iron Ore Assn.
* Estimate by Lake Superior Iron Ore Assn.

U. S. IRON ORE CONSUMPTION

In Long Tons

1944	99,942,454
1945	85,156,495
1946	72,174,844
1947	96,115,549
1948	100,498,587
1949	91,123,220
1950*	120,535,700

* Estimate by The Iron Age

WORLD RESERVES OF IRON ORE AND COKING COAL*

		IRON ORE							COAL		
		Probable		Potential							
			Approximate Iron Content		Approximate Iron Content		Per Capita Metallic Content				
	COUNTRY	(Millions of Metric Tons)	(Percent)	(Millions of Metric Tons)	(Millions of Metric Tons)	(Percent)	(Millions of Metric Tons)	Probable (Metric Tons)	Potential (Metric Tons)	Probable (Millions of Metric Tons)	Proportion of Coking Coal	Estimated Population Mid-1948 (Millions)
	AFRICA:											
1	Algeria	88	50	44	88	50	44	5.1	5.1	100	.....	8.68
2	Belgian Congo	100	50	50	100	50	50	4.6	4.6	95	.....	10.88
3	Egypt	14	47	7	14	47	7	0.4	0.4	.....	.....	19.53
4	French West Africa	2,000	50	1,000	2,030	50	1,015	63.0	63.0	.....	.....	16.00
5	Liberia	.....	.....	.....	14	67	9	.....	5.6	.....	.....	1.60
6	Morocco (French)	6	47	3	45	49	22	0.4	2.6	21	.....	8.30
7	Morocco (Spanish)	30	55	16	30	55	16	14.0	14.0	.....	.....	1.14
8	Sierra Leone	100	58	58	100	58	58	29.0	29.0	.....	.....	2.00
9	South-West Africa	.....	.....	.....	569	38	216	.....	583.7	.....	.....	0.37
10	Southern Rhodesia	2,240	51	1,142	105,564	48	50,671	576.8	25,591.0	7,224	Low	1.98
11	Togoland (French)	.....	.....	.....	20	50	10	.....	10.5	.....	.....	0.95
12	Tunisia	25	54	14	25	54	14	4.4	4.4	.....	.....	3.40
13	Union of South Africa	2,712	47	1,275	10,828	47	5,089	107.2	428.0	67,325	Moderate	11.89
14	**TOTAL**	7,315		3,609	119,427	48	57,221	18.6	295.2	74,765	Moderate	193.83
	NORTH AMERICA:											
15	Canada	1,937	48	930	4,355	51	2,221	70.4	168.1	65,053	Low	13.21
16	United States	3,800	45	1,710	70,800	36	25,488	11.7	173.9	2,028,000	High	146.57
17	**TOTAL**	5,737	48	2,640	75,155	37	27,709	16.5	173.3	2,093,053	High	159.88
	LATIN AMERICA:											
18	Argentina	.....	.....	.....	80	40	32	.....	2.0	50	.....	16.30
19	Brazil	6,300	65	4,095	19,650	55	10,807	84.5	223.0	5,000	Low	48.45
20	Chile	72	60	43	262	58	152	7.7	27.0	110	Moderate	5.62
21	Colombia	20	45	9	20	45	9	0.8	0.8	27,000	.....	10.78
22	Cuba	3,000	40	1,200	15,000	36	5,400	232.6	1,046.5	.....	.....	5.16
23	Honduras	10	47	5	10	47	5	4.0	4.0	1	.....	1.26
24	Mexico	315	61	189	315	61	189	7.9	7.9	3,000	High	23.88
25	Peru	11	50	6	22	50	11	0.7	1.4	2,000	.....	8.06
26	Venezuela	360	60	216	960	51	490	48.1	109.1	5	.....	4.49
27	**TOTAL**	10,088	57	5,763	36,319	47	17,090	37.0	109.7	37,166	Low	155.72
	ASIA:											
28	China	1,800	45	810	2,700	45	1,215	1.7	2.6	244,000	Moderate	483.48
29	India	9,347	60	5,608	20,320	51	10,272	16.1	30.0	82,143	Low	342.10
30	Indochina	10	60	6	56	50	28	0.2	1.0	3,500	Low	27.03
31	Indonesia	100	49	49	1,500	48	720	0.6	9.4	400	Low	76.38
32	Japan	.....	.....	.....	62	61	38	.....	0.5	16,218	Moderate-Low	80.17
33	Korea	70	35	24	370	31	115	0.9	4.1	5,585	Moderate-Low	28.20
34	Malaya	.....	.....	.....	66	65	43	.....	7.2	12	.....	5.96
35	Philippines	1,016	47	478	1,016	47	478	24.0	24.0	50	Low	19.96
36	Thailand	2	66	1	5	54	3	0.1	0.2	.....	.....	17.67
37	Turkey	22	55	12	22	55	12	0.6	0.6	400	Moderate-Low	19.50
38	**TOTAL**	12,367	56	6,988	26,117	49	12,924	5.6	10.3	332,308	Low	1,248.92
	EUROPE:											
39	Albania	20	50	10	20	50	10	8.5	8.5	.....	.....	1.16
40	Austria	.....	.....	.....	242	35	85	.....	12.1	19	.....	6.97
41	Belgium	.....	.....	.....	.....	.....	.....	.....	.....	3,000	High	8.56
42	Bulgaria	.....	.....	.....	1	63	1	.....	0.1	1	.....	7.19
43	Czechoslovakia	60	35	18	200	32	64	1.5	5.2	6,000	High	12.34
44	Finland	.....	.....	.....	213	32	68	.....	17.2	.....	.....	3.96
45	France	6,700	38	2,546	10,500	37	3,876	61.3	93.4	11,772	High	41.50
46	Germany	800	32	256	2,800	30	840	3.8	12.3	260,000	High	66.25
47	Greece	50	46	23	130	44	57	3.0	7.3	.....	.....	7.78
48	Hungary	80	40	32	80	40	32	3.5	3.5	210	High	9.16
49	Italy	60	50	30	60	50	30	0.7	0.7	155	.....	45.71
50	Luxembourg	200	28	56	300	26	78	193.1	289.0	.....	High	0.29
51	Norway	170	48	82	2,170	34	738	25.8	232.1	8,000	.....	3.18
52	Poland	59	35	21	175	35	61	0.9	2.6	60,000	Moderate	23.90
53	Portugal	50	45	22	50	45	22	2.6	2.6	20	.....	8.40
54	Romania	.....	.....	.....	20	45	9	.....	0.6	48	Moderate	16.00
55	Spain	800	45	360	1,800	35	630	13.0	22.7	8,000	Moderate	27.76
56	Sweden	2,200	64	1,408	2,500	64	1,600	204.6	232.6	100	.....	6.88
57	Switzerland	.....	.....	.....	55	30	16	.....	3.5	.....	.....	4.61
58	United Kingdom	2,400	28	672	3,400	27	918	13.4	18.3	175,778	High	50.06
59	Yugoslavia	55	47	26	430	46	198	1.6	12.5	39	.....	15.80
60	**TOTAL**	13,694	41	5,562	25,146	37	9,333	14.4	24.1	533,140	High	387.37
	OCEANIA:											
61	Australia	203	62	126	330	60	198	16.3	25.7	15,241	High	7.71
62	New Caledonia	.....	.....	.....	20	52	10	.....	200.0	.....	.....	0.05
63	New Zealand	10	40	4	15	53	8	2.2	4.3	57	.....	1.84
64	**TOTAL**	213	61	130	365	59	216	10.7	17.7	15,298	High	12.19
	USSR:											
65	In Europe	3,133	45	1,410	7,124	40	2,850	7.3	14.8	.....	.....	.....
66	In Asia	1,371	45	617	3,738	40	1,495	3.2	7.7	.....	.....	.....
67	**TOTAL**	4,504	45	2,027	10,862	40	4,345	10.5	22.5	1,443,000	High	193.00
68	**GRAND TOTAL**	53,918	50	26,719	293,391	44	128,838	11.4	54.8	4,528,730	.....	2,350.89

* For source and detailed information on table see United Nations booklet, "World Iron Ore Resources and Their Utilization," p. 66.

WORLD PRODUCTION OF IRON ORE

In Metric Tons, 1943 to 1949

COUNTRY [1]	1943	1944	1945	1946	1947	1948	1949
North America:							
Canada	561,769	501,899	1,030,052	1,405,996	1,741,210	1,213,121	3,424,174
Newfoundland	551,515	471,824	1,000,449	1,264,141	1,466,577	1,491,618	
Cuba	47,113	28,370	.....	.....	63,276	38,595	11,961
Mexico	252,437	301,550	282,524	275,445	332,446	333,100	362,900
United States	102,872,883	85,628,294	89,794,834	71,980,145	94,585,639	102,624,598	86,300,693
South America:							
Argentina	180	1,921	43,353	55,400	60,500	[2]	[2]
Brazil	792,217	782,000	716,000	517,785	928,625	1,441,119	[2]
Chile[3]	299,411	674,529	944,663	1,352,886	1,607,929	2,545,401	2,597,330
Europe:							
Austria	3,188,489	3,014,909	323,189	462,016	884,856	1,269,100	10,467,616
Belgium	127,890	430,590	29,800	39,910	58,209	96,720	41,760
Czechoslovakia	1,944,000	1,584,000	276,000	1,116,074	1,383,491	1,428,000	1,400,000[4]
France[5]	31,934,000	19,012,800	7,712,760	16,232,220	18,718,510	23,031,000	21,424,000
Germany[6]	10,763,000	10,269,000[5]	[2]	4,140,100	4,463,000[4]	7,278,000[4]	9,112,000
Hungary	837,640	427,660[9,10]	47,800[9]	132,970	243,940	255,240	293,000
Italy	835,773	390,438	133,951	131,617	226,254	543,241	820,842
Luxembourg	5,253,025	2,912,500	1,405,877	2,248,908	1,992,167	3,399,274	4,137,327
Norway	219,000	264,426	78,538	59,972	127,798	287,992	375,678
Poland	717,331	680,754	105,669	395,470	504,454	602,000	506,801[11]
Rumania	252,058	243,418	140,797	111,802	120,870	140,000[4]	200,000[4]
Spain	1,587,817	1,508,610	1,171,377	1,596,212	1,513,911	1,630,728	1,811,112
Sweden	10,819,997	7,253,359	3,929,662	6,867,208	8,894,544	13,287,118	14,000,000[4]
Switzerland	276,959	214,499	17,436	18,000	45,000	75,000[4]	40,000
U. S. S. R.[12]	14,000,000[4]	16,000,000[4]	18,000,000[4]	21,000,000[4]	24,000,000[4]	[2]	[2]
United Kingdom:							
Great Britain[13]	18,790,524	15,720,021	14,425,878	12,368,377	11,268,909	13,299,282	13,620,000
Northern Ireland	8,680	579	[2]	.....	.....	.....	[2]
Asia:							
China	10,560,500	8,445,700	4,178,000	15,114[14]	18,894[14]	246,800[4,14]	[2]
French Indochina	80,576	21,975	7,925	.....	.....	.....	.....
India	2,697,813	2,401,576	2,300,524	2,446,325	2,538,559	2,321,255	[2]
Japan[15]	3,057,177[16]	4,367,879[16]	1,356,280[16]	566,470	900,212	561,063	779,674
Korea:							
North }	2,359,000	3,387,000	832,953	75,000[4]	93,000[4]	[2]	[2]
South }				.....	.....	.....	.....
Malaya	49,137	10,621	13,590	205	902	851	6,525
Philippines	[2]	[2]	[2]	.....	.....	18,289	370,172
Portuguese India	[2]	[2]	[2]	[2]	[2]	[2]	151,000
Turkey	91,751	90,430	125,706	112,210	145,620	185,434	216,043
U. S. S. R.	[2]	[2]	[12]	[12]	[2]	[2]	[2]
Africa:							
Algeria	183,492	783,928	1,202,448	1,671,244	1,558,055	1,871,522	2,538,518
Belgian Congo	23,964	.....	.....	.....	.....	.....	[2]
French Morocco	10,870	6,600	104	124,870	156,310	301,300	356,800
Northern Rhodesia	624	212	76	162	1,528	149	1,749
Sierra Leone	517,727	641,165	840,611	741,105	854,128	967,888	[2]
Southern Rhodesia	182	.....	.....	.....	286	30,478	51,483
Spanish Morocco	547,625	690,880	784,816	787,340	869,016	904,330	943,539
Tunisia	29,703	88,863	132,450	182,705	483,691	690,200	711,894
Union of South Africa	738,128	768,392	775,470	946,828	1,162,127	1,163,723	1,248,000
Oceania:							
Australia:							
New South Wales	205,691	154,326	43,358	.....	.....	.....	.....
Queensland	3,095	2,375	1,743	1,681	1,384	2,156	[2]
South Australia	2,217,865	2,061,810	1,543,993	1,847,398	2,179,965	2,067,485	762,917[11]
Western Australia	86	.....	.....	.....	.....	7,338	9,277[11]
New Caledonia	36,280	60,406	.....	.....	[2]	[2]	[2]
New Zealand	5,068	6,133	6,164	7,525	6,326	4,853	[2]
Total (estimate)	231,000,000	203,000,000	162,000,000	153,500,000	186,000,000	216,000,000	218,000,000

[1] In addition to countries listed Bulgaria, Burma, Egypt, Eritrea, French West Africa, Greece, Madagascar, Portugal, South-West Africa, and Yugoslavia report production of iron ore in past years, but quantity produced is believed insufficient to affect estimate of world total, except for Yugoslavia for which estimate has been included in the total. [2] Data not available; estimate by author of the chapter included in total. [3] Production of Tofo mines. [4] Estimate. [5] Including Moselle (Lorraine). [6] Exclusive of manganiferous iron ore carrying 12 to 30 pct manganese. [7] Includes Eastern Upper Silesia. [8] Excluding Russian zone. [9] Data represent Trianon Hungary subsequent to October 1944. [10] January to June, inclusive. [11] January to September, inclusive. [12] U.S.S.R. in Asia included with U.S.S.R. in Europe. [13] Exclusive of bog ore, which is used mainly for purification of gas. [14] Production of National Resources Commission only. [15] Includes iron sand production as follows: 1943-44, 427,000 tons; 1944-45, 858,782 tons; 1945-46, 235,094 tons; 1946, 10,472 tons; 1947, 3772 tons; 1948, 2588 tons; 1949, 23,724 tons. [16] Fiscal year ended March 31 of year following that stated.

Source: Bureau of Mines

U. S. PRODUCTION OF IRON ORE

In Gross Tons, Includes Lake Superior, Northeastern, Southeastern, Western

Year	Lake Superior	Northeastern	Southeastern	Western	Total
1930	49,383,383	2,248,682	5,838,105	938,492	58,408,664
1931	25,877,416	936,960	3,644,606	672,520	31,131,502
1932	8,139,427	165,009	1,375,459	167,021	9,846,916
1933	14,611,032	396,228	2,159,958	385,970	17,553,188
1934	21,031,019	908,944	2,347,625	300,028	24,587,616
1935	25,368,637	1,349,247	3,295,684	526,684	30,540,252
1936	41,781,215	2,069,764	4,214,587	723,179	48,788,745
1937	61,657,635	3,145,177	6,351,053	939,683	72,093,548
1938	21,308,410	2,306,910	4,325,729	806,233	28,447,282
1939	41,679,808	3,112,893	[16]6,021,781	917,448	51,731,730
1940	61,471,323	3,559,924	[17]7,446,103	1,218,549	73,695,899
1941	78,858,332	3,962,072	8,145,900	1,443,275	92,409,579
1942	91,005,021	3,119,506	9,159,228	1,599,429	[2]105,526,195
1943	85,789,017	3,467,575	8,478,736	2,859,994	[2]101,247,635
1944	79,111,320	3,849,396	7,121,676	3,442,406	[2]94,117,705
1945	74,821,045	3,620,147	6,329,957	3,087,774	[2]88,376,393
1946	59,042,154	2,596,349	6,247,086	2,450,611	[2]70,843,113
1947	76,531,769	3,967,195	7,527,321	4,502,512	[2]93,091,529
1948	82,630,430	4,422,971	8,365,390	5,104,703	[2]101,003,492
1949	68,494,123	3,833,833	7,801,822	4,441,671	[2]84,937,447
1950	[3]79,000,000	[3]4,800,000	[3]8,000,000	[3]5,200,000	[3]97,000,000

[1] Includes Texas.
[2] Includes by-product ore not assigned to districts.
[3] Estimate by Bureau of Mines.

Source: U. S. Bureau of Mines

IRON MINING EMPLOYMENT, WAGES

	Production and Related Workers				All Employees
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)	Number (thousands)
1947	$52.34	40.2	$1.302	31.6	34.3
1948	55.32	41.3	1.412	33.6	36.6
1949	59.06	39.8	1.484	30.4	33.7
1950:					
Jan.	58.68	39.7	1.478	30.4	34.0
Feb.	59.62	40.5	1.472	30.2	33.8
Mar.	57.57	38.9	1.480	30.5	33.9
Apr.	59.62	40.2	1.483	30.3	33.8
May	63.11	41.6	1.517	31.8	35.4
June	63.40	41.6	1.524	32.4	36.1
July	64.11	41.6	1.541	33.0	36.6

Source: Bureau of Labor Statistics

3 METAL FACTS SECTION

No. 1 Heavy Melting and Cast Scrap Prices in Major Iron and Steel Centers



MACHINERY CAST AT CHICAGO

Prices of No. 1 Scrap, Per Gross Ton‡

	1929	1934	1936	1937	1939	1940
Jan.	$15.81	$9.50	$12.00	$15.87	$12.56	$14.00
Feb.	16.25	9.50	12.75	16.25	12.75	13.75
March	16.00	9.50	13.10	17.40	12.75	13.56
April	16.60	9.50	12.50	17.12	12.12	14.81
May	15.39	8.90	12.00	15.25	11.75	16.31
June	14.75	7.50	12.00	15.00	12.15	17.31
July	14.50	8.05	12.12	15.75	12.25	16.75
Aug.	14.50	8.00	13.37	16.55	12.25	16.88
Sept.	14.50	8.00	13.60	14.38	14.50	17.13
Oct.	14.50	8.00	14.00	13.18	16.67	17.75
Nov.	13.63	8.25	14.00	11.65	15.65	18.00
Dec.	13.50	9.65	14.75	12.12	14.50	19.13
Average	15.11	8.69	13.02	15.04	13.34	16.28

	1941*	1946*	1947	1948	1949	1950
Jan.	$18.88	$20.00	$43.38	$68.00	$57.25	$38.50
Feb.	19.25	20.00	44.56	65.25	46.00	39.00
March	20.75	20.00	46.00	68.50	41.20	39.75
April	‡22.33	20.00	42.70	73.12	29.63	41.50
May	21.40	20.00	38.00	72.50	27.90	45.70
June	20.00	20.00	41.81	69.90	28.69	47.25
July	20.00	20.00	46.00	71.50	30.75	45.50
Aug.	20.00	20.00	49.38	74.30	39.30	49.10
Sept.	20.00	22.50	49.50	71.25	42.25	50.25
Oct.	20.00	25.00	51.00	69.87	41.25	52.80
Nov.	20.00	32.28	52.75	72.20	43.88	60.38
Dec.	20.00	41.05	60.30	69.50	39.85	65.00†
Average	20.21	23.40	47.12	70.48	39.00	47.89

† Estimate.
‡ Changed from net ton basis April 30, 1941.
* Price unchanged at $20.00 from 1942 through 1945. Ceiling price does not include delivery costs.

PHILADELPHIA HEAVY MELTING

Prices of No. 1 Scrap, Per Gross Ton

	1929	1937	1939	1940	1941*	1944*
Jan.	$16.39	$17.37	$15.25	$18.00	$20.50	$18.75
Feb.	16.39	18.50	15.25	17.38	20.00	18.75
March	16.13	19.60	15.38	17.12	20.00	18.75
April	17.00	20.00	15.62	16.75	19.00	18.75
May	16.39	18.62	15.25	17.56	18.75	18.75
June	16.00	17.20	15.41	19.69	18.75	18.75
July	16.50	19.00	15.62	18.95	18.75	18.75
Aug.	16.50	19.75	18.25	19.56	18.75	18.60
Sept.	16.39	19.00	18.87	20.50	18.75	16.68
Oct.	15.70	16.38	22.35	20.70	18.75	14.60
Nov.	15.00	13.75	20.75	20.75	18.75	15.50
Dec.	14.50	14.25	18.92	20.85	18.75	18.50
Average	16.07	17.78	17.08	18.98	19.13	17.01

	1945	1946	1947	1948	1949	1950
Jan.	$18.75	$18.75	$31.00	$42.50	$42.75	$23.10
Feb.	18.75	18.75	33.38	41.50	39.75	23.00
March	18.75	18.75	39.38	40.60	35.10	23.85
April	18.75	18.75	33.10	41.50	23.00	25.39
May	18.40	18.75	29.69	42.31	22.00	28.70
June	18.25	18.75	33.63	42.50	19.50	34.63
July	18.75	18.75	38.45	43.12	17.50	32.91
Aug.	18.75	18.75	38.50	45.00	18.31	36.50
Sept.	18.75	18.75	36.80	45.00	23.35	38.50
Oct.	18.75	18.75	40.25	45.00	24.25	38.50
Nov.	18.75	22.94	42.63	44.75	24.50	39.44
Dec.	18.75	28.00	41.10	44.50	24.25	44.50†
Average	18.68	19.87	36.50	43.20	28.19	32.41

* Price unchanged at $18.75 throughout 1942 and 1943.
† Estimate.

PITTSBURGH HEAVY MELTING

Prices of No. 1 Scrap, Per Gross Ton

	1929	1937	1939	1940	1941*	1944*
Jan.	$19.31	$19.50	$15.72	$18.25	$22.13	$20.00
Feb.	18.63	19.81	15.72	17.50	21.00	20.00
Mar.	18.44	23.15	15.97	16.88	21.00	20.00
Apr.	18.60	22.25	15.61	16.55	20.20	20.00
May	17.88	19.38	14.48	18.37	20.00	20.00
June	18.25	18.45	15.12	20.06	20.00	20.00
July	18.55	19.75	15.56	19.10	20.00	20.00
Aug.	19.00	21.85	16.15	18.56	20.00	19.95
Sept.	18.31	19.62	19.88	20.00	20.00	18.25
Oct.	17.30	16.62	23.05	21.45	20.00	16.10
Nov.	16.39	13.75	20.58	21.69	20.00	17.13
Dec.	15.45	13.75	18.58	22.28	20.00	19.94
Average	18.01	18.86	17.17	19.23	20.36	19.28

	1945	1946	1947	1948	1949	1950
Jan.	$20.00	$20.00	$32.25	$40.37	$41.25	$29.95
Feb.	20.00	20.00	34.94	40.43	39.25	31.25
Mar.	20.00	20.00	39.85	40.25	36.30	32.13
Apr.	20.00	20.00	35.40	40.25	24.94	33.00
May	20.00	20.00	30.38	40.25	23.00	37.75
June	20.00	20.00	33.88	40.25	22.00	44.50
July	20.00	20.00	38.45	40.87	20.75	41.50
Aug.	20.00	20.00	40.00	42.75	21.94	43.90
Sept.	20.00	20.00	37.75	42.75	27.35	43.75
Oct.	20.00	20.00	40.75	42.75	29.44	43.75
Nov.	20.00	23.94	41.88	42.75	31.95	43.75
Dec.	20.00	29.00	40.00	42.75	30.75	46.25†
Average	20.00	21.08	37.13	41.36	29.08	39.29

* Price unchanged at $20.00 throughout 1942 and 1943.
† Estimate.

MACHINERY CAST AT CINCINNATI

Prices of No. 1 Scrap, Per Gross Ton

	1929	1934	1936	1937	1939	1940
Jan.	$17.14	$ 9.50	$11.37	$15.75	$13.75	$17.85
Feb.	17.24	9.50	11.75	16.12	13.75	16.69
March	17.19	10.00	12.40	17.30	14.38	16.25
April	17.19	10.00	12.19	17.37	13.56	16.05
May	17.19	9.45	11.50	14.44	12.00	16.88
June	17.19	9.00	11.20	14.00	12.13	19.38
July	17.19	9.00	11.19	14.87	12.25	18.85
Aug.	17.05	8.88	12.43	16.25	11.80	18.75
Sept.	16.98	8.75	13.60	14.25	15.38	20.12
Oct.	16.92	8.75	14.00	13.38	19.55	20.55
Nov.	16.57	8.88	14.00	11.85	18.88	21.00
Dec.	16.52	9.85	15.12	10.75	17.75	22.50
Average	17.03	9.30	12.56	14.69	14.68	18.71

	1941*	1946*	1947	1948†	1949†	1950†
Jan.	$22.75	$20.00	$34.00	$60.00	$60.00	$36.90
Feb.	22.50	20.00	35.38	66.75	49.00	35.75
March	‡22.50	20.00	47.00	63.70	42.00	38.50
April		20.00	45.80	63.50	32.00	40.50
May		20.00	43.25	63.50	27.50	44.90
June		20.00	44.88	63.50	28.30	46.75
July		20.00	46.50	64.75	25.50	46.50
Aug.		20.00	45.50	67.00	29.88	49.10
Sept.	‡22.50	22.50	44.50	67.00	36.50	53.50
Oct.	22.50	25.00	45.50	65.50	40.50	59.20
Nov.	22.50	26.25	50.38	65.50	41.00	63.75
Dec.	22.50	30.80	53.60	65.50	40.25	66.00**
Average		22.05	44.67	64.66	37.54	48.45

† Average of No. 1 cupola cast prices.
‡ In transition from open market quotations to OPA price maximums, this grade not quoted. However, in September, the maximum schedules were revised to include this grade.
* Price unchanged at $20.00 from 1942 through 1945.
** Estimate.

CONSUMERS' SCRAP INVENTORIES

In Gross Tons, Purchased and Home

Date	Purchased	Home
December 31, 1948	4,031,000	1,384,000
January 31, 1949	4,058,000	1,326,000
February 28, 1949	3,999,000	1,253,000
March 31, 1949	3,907,000	1,309,000
April 30, 1949	3,764,000	1,388,000
May 31, 1949	3,678,000	1,452,000
June 30, 1949	3,637,000	1,563,000
July 31, 1949	3,507,000	1,587,000
September 30, 1949	2,940,000	1,367,000
October 31, 1949	3,217,000	1,551,000
November 30, 1949	3,396,000	1,512,000
December 31, 1949	3,639,000	1,466,000
January 31, 1950	3,439,000	1,382,000
February 28, 1950	3,291,000	1,311,000
March 31, 1950	3,033,000	1,199,000
April 30, 1950	2,854,000	1,174,000
May 31, 1950	2,924,000	1,224,000
June 30, 1950	3,261,000	1,338,000
July 31, 1950	3,528,000	1,430,000
August 31, 1950	3,676,000	1,517,000
September 30, 1950	3,621,000	1,528,000

Source: U. S. Bureau of Mines

CHICAGO HEAVY MELTING SCRAP

Prices of No. 1 Scrap, Per Gross Ton‡

	1929	1937	1939	1940	1941*	1944*
Jan.	$15.39	$17.81	$13.87	$16.38	$20.00	$18.75
Feb.	15.88	19.25	13.94	15.75	19.25	18.75
March	15.66	20.60	14.25	15.69	19.88	18.75
April	15.95	20.56	13.37	15.33	18.95	18.75
May	15.39	17.12	12.75	17.00	18.75	18.75
June	14.94	15.70	13.45	18.19	18.75	18.75
July	14.75	17.62	13.50	17.35	18.75	18.75
Aug.	15.06	19.70	13.87	18.03	18.75	18.75
Sept.	15.13	17.56	16.22	19.22	18.75	18.69
Oct.	14.30	14.69	19.16	19.75	18.75	18.90
Nov.	13.15	12.50	17.85	20.06	18.75	17.08
Dec.	12.50	12.38	16.67	20.60	18.75	18.69
Average	14.84	17.12	14.91	17.73	19.01	18.27

	1945	1946	1947	1948	1949	1950
Jan.	$18.75	$18.75	$29.75	$39.56	$40.06	$26.70
Feb.	18.75	18.75	31.63	39.12	35.63	27.50
March	18.75	18.75	36.69	38.95	33.70	28.25
April	18.75	18.75	33.05	39.18	23.63	28.75
May	18.75	18.75	29.38	39.25	23.00	33.75
June	18.75	18.75	30.88	39.25	20.85	38.75
July	18.75	18.75	36.97	40.81	19.75	37.25
Aug.	18.75	18.75	39.88	41.75	22.00	39.15
Sept.	18.75	18.75	38.75	41.75	26.30	39.81
Oct.	18.75	18.75	40.50	41.75	25.50	39.75
Nov.	18.75	23.13	39.13	41.75	30.30	39.75
Dec.	18.75	27.25	38.90	41.75	26.75	44.50†
Average	18.75	19.87	35.45	40.40	27.29	35.33

* Price unchanged at $18.75 throughout 1942 and 1943.
† Estimate.
‡ Changed from net ton basis April 30, 1941.

COAL EMPLOYMENT AND WAGES

Bituminous Production, Related Workers

	Production and Related Workers				All Employees
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)	Number (thousands)
1947	$66.59	40.7	$1.636	402.1	425.6
1948	72.12	38.0	1.898	413.1	436.2
1949	63.28	32.6	1.941	373.4	399.0
1950:					
Jan.	47.36	24.5	1.933	322.5	347.7
Feb.	49.83	25.4	1.962	60.0	82.6
Mar.	78.75	39.2	2.009	398.4	422.9
Apr.	72.79	36.0	2.022	393.8	419.0
May	68.37	34.1	2.005	387.9	413.1
June	70.09	34.8	2.014	385.4	410.9
July	68.88	34.2	2.014	357.0	381.8

Source: Bureau of Labor Statistics

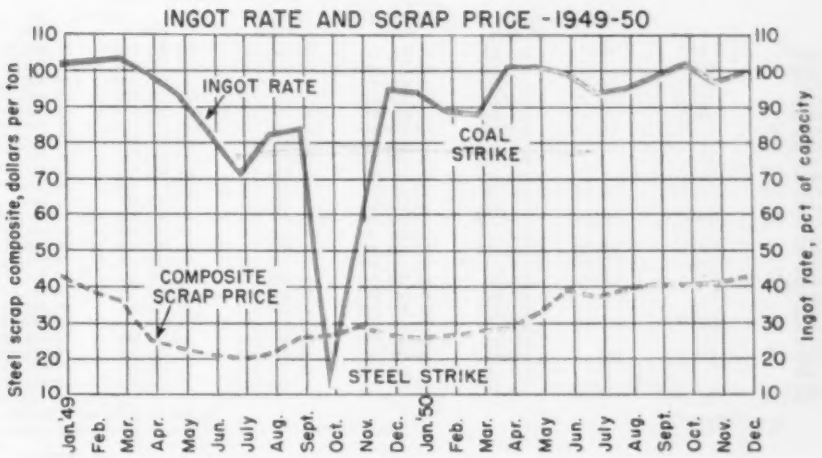
U. S. CONSUMPTION OF SCRAP

Gross Tons, Domestic, Exports, Imports

	Domestic Consumption (Purchased and Home)	Exports (Purchased)	Imports (Purchased)
1910	13,100,000	25,825	72,764
1911	12,100,000	77,918	17,272
1912	16,100,000	105,965	23,612
1913	15,300,000	94,429	44,154
1914	12,200,000	33,134	34,839
1915	18,600,000	79,361	79,982
1916	23,400,000	212,765	116,039
1917	26,800,000	145,574	180,034
1918	25,400,000	2,160	63,730
1919	20,700,000	27,275	177,293
1920	26,000,000	219,250	140,645
1921	12,400,000	37,592	41,469
1922	23,700,000	67,784	142,969
1923	27,000,000	65,980	162,066
1924	26,200,000	97,748	66,841
1925	30,700,000	82,573	99,815
1926	32,200,000	104,838	86,725
1927	30,700,000	239,209	60,207
1928	34,000,000	516,148	63,314
1929	37,600,000	557,044	90,479
1930	26,600,000	358,649	27,482
1931	18,300,000	136,125	16,279
1932	10,000,000	227,522	9,775
1933	17,400,000	773,406	56,133
1934	18,800,000	1,835,170	44,421
1935	26,415,330	2,103,958	64,768
1936	36,358,133	1,936,132	142,245
1937	38,006,272	4,092,590	81,640
1938	21,344,934	2,998,591	24,451
1939	32,434,407	3,577,427	29,482
1940	39,758,635	2,820,789	1,927
1941	52,871,657	792,760	64,085
1942	53,808,171	126,473	82,257
1943	55,045,495	48,957	128,018
1944	54,776,072	85,430	97,162
1945	50,170,612	76,318	41,313
1946	44,182,240	121,679	26,984
1947	54,343,000	173,413	32,312
1948	58,285,000	216,093	370,600
1949	49,281,000	307,468	977,154
1950	60,910,000*	340,000*	553,000*

* Estimate by Institute of Scrap Iron & Steel.

Source: U. S. Bureau of Mines, and Institute of Scrap Iron and Steel



COMPOSITE PRICE OF NO. 1 HEAVY MELTING SCRAP

Average of Iron Age scrap prices, Pittsburgh, Chicago, Phila., Per Gross Ton

	1929	1937	1939	1940	1941*	1944*	1945	1946	1947	1948	1949	1950
Jan.	$17.02	$18.33	$14.94	$17.58	$20.88	$19.17	$19.17	$19.17	$31.00	$40.81	$41.36	$26.58
Feb.	16.96	19.27	15.01	16.88	20.08	19.17	19.17	19.17	33.31	40.35	38.21	27.25
Mar.	16.71	21.25	15.20	16.56	20.29	19.17	19.17	19.17	38.65	40.00	35.43	28.05
Apr.	17.18	21.02	14.77	16.14	19.22	19.17	19.17	19.17	33.65	40.31	23.86	29.04
May	16.54	18.54	14.17	17.60	19.17	19.17	19.05	19.17	29.61	40.60	22.67	33.40
June	16.39	17.28	14.71	19.31	19.17	19.17	19.00	19.17	32.79	40.66	20.78	39.29
July	16.60	18.79	14.92	18.47	19.17	19.17	19.17	19.17	37.95	41.60	19.33	37.25
Aug.	16.86	20.43	15.43	18.72	19.17	19.10	19.17	19.17	39.48	43.16	20.85	39.85
Sept.	16.60	18.73	18.32	19.91	19.17	17.87	19.17	19.17	37.77	43.16	25.67	40.69
Oct.	15.78	15.89	21.48	20.63	19.17	15.87	19.17	19.17	40.50	43.16	26.40	40.67
Nov.	14.83	13.34	19.86	20.83	19.17	16.54	19.17	23.34	41.21	43.04	29.98	40.98
Dec.	14.15	13.46	18.05	21.42	19.17	19.04	19.17	28.23	40.00	43.00	27.18	44.00
Average	16.30	18.03	16.39	18.67	19.49	18.55	19.15	20.27	36.36	41.85	27.56	34.75

* Price unchanged at $19.17 throughout 1942 and 1943. † Estimate.

U. S. COAL PRODUCTION

In Short Tons, Bituminous, Anthracite

	Bituminous	Anthracite
1930	467,526,299	69,384,837
1931	382,089,396	59,645,652
1932	309,709,872	49,855,221
1933	333,630,533	49,541,344
1934	359,368,022	57,168,291
1935	372,373,122	52,158,783
1936	439,087,903	54,579,535
1937	445,531,449	51,586,433
1938	348,544,764	46,099,027
1939	394,855,325	51,487,377
1940	480,771,500	51,484,640
1941	514,149,245	56,368,267
1942	562,692,937	60,327,729
1943	590,177,089	60,643,620
1944	619,576,240	63,701,363
1945	577,617,327	54,933,909
1946	533,922,068	60,506,573
1947	630,623,722	57,190,009
1948	599,518,229	57,139,948
1949	437,888,036	42,701,724
1950*	413,541,000	37,653,000

* Ten months.

Source: U. S. Bureau of Mines

U. S. COAL CONSUMPTION

In Short Tons, Bituminous, Anthracite

	Bituminous	Anthracite
1930	454,990,000	‡
1931	371,869,000	58,400,000
1932	306,917,000	50,500,000
1933	321,748,000	49,600,000
1934	347,043,000	55,500,000
1935	360,292,000	51,100,000
1936	422,795,000	53,200,000
1937	432,603,000	50,400,000
1938	338,086,000	45,200,000
1939	377,773,000	49,700,000
1940	432,757,000	49,000,000
1941	494,088,000	52,700,000
1942	542,214,000	56,500,000
1943	596,164,000	57,100,000
1944	591,830,000	59,400,000
1945	559,567,000	51,600,000
1946	500,386,000	53,900,000
1947	567,243,000	48,200,000
1948	536,672,000	50,200,000
1949	445,538,000	37,700,700

‡ Not Available.

Source: U. S. Bureau of Mines

U. S. COAL EXPORTS

In Short Tons, Bituminous, Anthracite

	Bituminous	Anthracite
1930	15,877,407	2,551,689
1931	12,126,299	1,778,306
1932	8,814,047	1,303,355
1933	9,036,947	1,034,562
1934	10,868,582	1,297,810
1935	9,742,430	1,608,549
1936	10,654,959	1,676,024
1937	13,144,678	1,914,173
1938	10,490,269	1,908,911
1939	11,560,478	2,590,000
1940	16,465,928	2,867,632
1941	20,740,471	3,380,189
1942	22,943,305	4,438,588
1943	25,836,208	4,138,680
1944	26,032,348	4,185,933
1945	27,941,857	3,891,247
1946	41,208,576	6,506,829
1947	68,686,963	8,509,995
1948	45,930,133	6,675,914
1949	27,842,066	4,942,670
1950*	15,038,415	2,277,298

* Eight months.

Source: U. S. Bureau of Mines

PRODUCTION OF COKE IN THE U. S.

In Net Tons, Beehive and Byproduct Cokes

	Beehive	By-Product: Merchant Plants	By-Product: Furnace Plants	By-Product: Total	Total
1928	4,492,803	10,068,771	38,244,254	48,313,025	52,805,828
1929	6,472,019	12,187,439	41,224,387	53,411,826	59,883,845
1930	2,776,316	11,989,651	33,206,054	45,195,705	47,972,021
1931	1,128,337	11,538,309	20,817,240	32,355,549	33,483,886
1932	651,888	9,762,471	11,374,371	21,136,842	21,788,730
1933	911,056	10,533,968	16,144,168	26,678,136	27,589,194
1934	1,026,765	11,556,961	19,241,850	30,792,811	31,821,576
1935	917,206	11,189,792	23,034,261	34,224,053	35,141,261
1936	1,706,063	12,493,032	32,076,089	44,569,121	46,275,184
1937	3,164,721	13,076,539	36,134,209	49,210,748	52,375,469
1938	837,412	10,969,525	20,668,878	31,658,403	32,495,815
1939	1,444,328	11,070,506	31,811,807	42,882,313	44,326,641
1940	3,057,825	12,549,132	41,465,177	54,014,309	57,072,134
1941	6,704,156	13,494,509	44,987,913	58,482,422	65,186,578
1942	8,274,035	15,134,866	47,160,043	62,294,909	70,568,944
1943	7,933,387	14,750,033	48,992,643	63,742,676	71,676,063
1944	6,973,022	14,144,951	52,919,844	67,064,795	74,037,817
1945	5,213,893	13,399,116	48,695,172	62,094,288	67,308,181
1946	4,568,401	12,368,485	41,540,962	53,929,447	58,497,848
1947	6,667,301	13,897,699	52,860,850	66,758,549	73,445,850
1948	6,577,571	13,332,499	54,951,858	68,284,357	74,861,928
1949	3,414,948	12,112,922	48,109,559	60,222,481	63,637,429
1950[1]	3,756,737	9,004,356	39,749,608	48,753,964	52,510,701

[1] Nine months only.

Source: U. S. Bureau of Mines

BLAST FURNACE COKE RECEIPTS

In Short Tons

	By-Product	Total, By-Product and Beehive
1928	37,731,610	40,962,838
1929	40,577,068	45,466,149
1930	31,413,599	33,037,915
1931	18,448,986	18,916,536
1932	8,766,116	8,867,986
1933	13,110,485	13,282,408
1934	15,857,067	16,027,882
1935	20,815,385	20,934,821
1936	30,228,314	30,772,158
1937	34,730,491	38,751,988
1938	18,755,989	19,070,186
1939	30,640,220	31,498,567
1940	40,057,325	42,483,524
1941	44,646,004	50,454,225
1942	48,380,913	55,491,570
1943	50,885,639	57,690,180
1944	51,670,789	57,481,363
1945	46,910,822	51,002,921
1946	40,406,056	43,700,492
1947	52,268,441	57,638,505
1948	53,953,343	59,285,808
1949	48,229,358	51,104,570
1950*	54,000,000	58,000,000

* Estimated by THE IRON AGE.

Source: Bureau of Mines

CONNELLSVILLE FOUNDRY COKE

Net Ton at Oven, Monthly Review

	1929	1939	1940	1941*	1943*	1944
Jan.	$3.75	$4.75	$5.50	$5.75	$6.88	$8.06
Feb.	3.75	4.75	5.31	5.75	7.13	8.25
Mar.	3.75	4.75	5.25	5.65	7.38	8.25
Apr.	3.75	4.75	5.25	5.62	7.38	8.25
May	3.75	4.75	5.25	6.72	7.44	8.25
June	3.75	4.75	5.25	6.88	7.50	8.25
July	3.75	4.75	5.25	6.88	7.50	8.25
Aug.	3.75	4.75	5.25	6.88	7.50	8.25
Sept.	3.75	5.12	5.25	6.88	7.50	8.25
Oct.	3.75	5.65	5.25	6.88	7.50	8.25
Nov.	3.75	5.75	5.88	6.88	7.50	8.25
Dec.	3.50	5.75	5.75	6.88	7.50	8.25
Average	3.73	5.02	5.35	6.49	7.39	8.24

	1945	1946	1947	1948	1949	1950
Jan.	$8.25	$9.00	$8.50	$14.00	$16.94	$15.75
Feb.	8.25	9.00	9.38	14.00	16.75	15.75
Mar.	8.25	9.00	10.25	14.00	16.50	16.25
Apr.	8.25	9.00	10.65	14.00	16.50	16.25
May	8.47	9.00	11.25	14.00	16.38	16.25
June	9.00	9.00	11.25	16.00	16.25	16.25
July	9.00	9.68	12.75	16.50	16.13	16.25
Aug.	9.00	8.50	13.75	17.00	15.75	16.25
Sept.	9.00	8.50	13.75	17.00	15.75	16.25
Oct.	9.00	8.50	13.94	17.00	15.75	16.75
Nov.	9.00	8.50	14.00	17.00	15.75	16.75
Dec.	9.00	8.50	14.00	17.00	15.75	†16.75
Average	8.71	8.85	11.96	15.62	16.18	16.18

* Price unchanged at $8.88 throughout 1942.
† Tentative.

CONNELLSVILLE FURNACE COKE

Net Ton at Oven, Monthly Review

	1929	1939	1940	1941	1942	1943*
Jan.	$2.75	$3.75	$4.20	$5.50	$6.13	$6.00
Feb.	2.90	3.75	4.00	5.50	6.00	6.25
Mar.	2.98	3.75	4.00	5.52	6.00	6.50
Apr.	2.78	3.75	4.00	5.63	6.00	6.50
May	2.75	3.75	4.00	6.00	6.00	6.50
June	2.75	3.75	4.00	6.13	6.00	6.50
July	2.75	3.75	4.20	6.13	6.00	6.50
Aug.	2.73	3.75	4.63	6.13	6.00	6.50
Sept.	2.65	4.25	4.75	6.13	6.00	6.50
Oct.	2.65	4.90	4.75	6.13	6.00	6.50
Nov.	2.65	5.00	5.10	6.13	6.00	6.50
Dec.	2.63	5.00	5.38	6.13	6.00	6.60
Average	2.75	4.09	4.42	5.92	6.01	6.45

	1945*	1946	1947	1948	1949	1950
Jan.	$7.00	$7.50	$8.75	$12.50	$16.56	$14.00
Feb.	7.00	7.50	8.88	12.50	15.25	14.00
Mar.	7.00	7.50	9.00	12.50	14.50	14.13
Apr.	7.00	7.50	9.60	12.50	14.50	14.25
May	7.15	7.50	10.50	12.50	14.38	14.25
June	7.50	7.50	10.50	12.70	14.25	14.25
July	7.50	8.50	11.40	13.88	14.25	14.26
Aug.	7.50	8.75	12.00	14.75	14.25	14.25
Sept.	7.50	8.75	12.00	15.00	14.25	14.26
Oct.	7.50	8.75	12.38	15.00	14.25	14.25
Nov.	7.50	8.75	12.50	15.00	14.20	14.25
Dec.	7.50	8.75	12.50	15.00	14.00	†14.25
Average	7.30	8.10	10.83	13.63	14.58	†14.20

* Price unchanged at $7.00 throughout 1944.
† Tentative.

U. S. FOREIGN COKE TRADE

In Short Tons

	Exports	Imports for Consumption
1928	1,097,666	147,701
1929	1,238,035	119,724
1930	1,003,866	132,674
1931	754,302	103,583
1932	630,151	117,275
1933	637,819	160,873
1934	942,785	160,934
1935	613,975	317,379
1936	670,312	329,957
1937	828,683	288,384
1938	488,571	193,240
1939	589,925	141,911
1940	804,095	112,550
1941	706,971	267,698
1942	839,582	108,782
1943	994,607	86,127
1944	866,835	63,004
1945	1,478,746	51,964
1946	1,231,327	52,188
1947	835,059	104,083
1948	706,190	181,400
1949	548,256	277,507
1950 (7 months)	197,041	253,016

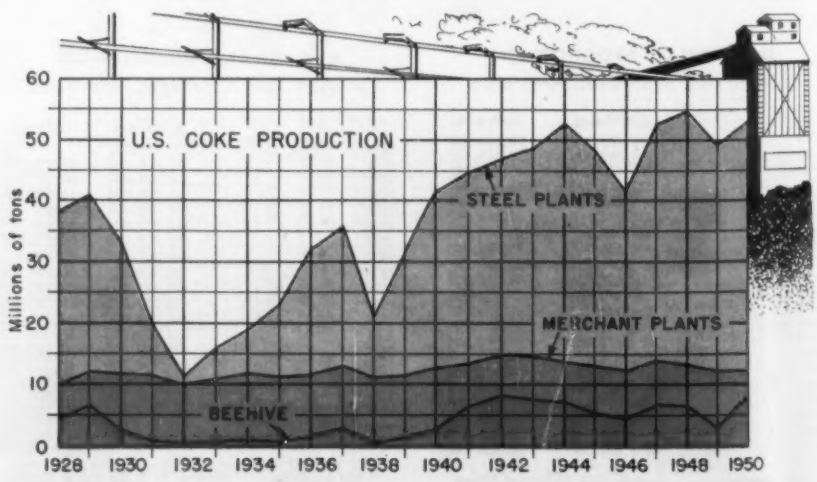
Source: U. S. Dept. of Commerce

BLAST FURNACE COKE

Consumption in Short Tons

1938	19,035,270
1939	31,422,272
1940	41,839,039
1941	49,469,972
1942	54,694,746
1943	56,701,419
1944	57,071,689
1945	50,653,221
1946	43,178,789
1947	57,147,644
1948	59,128,129
1949	51,356,617
1950	58,000,000

Source: American Iron & Steel Institute



MANGANESE ORE, U. S. IMPORTS FOR CONSUMPTION

In Short Tons, Manganese Content, Totals Include Small Producers, Not Listed

	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950*
Angola	.....	.....	.....	.....	.....	.....	.....	.....	2,466	3,992
Belgian Congo	.....	1,546	9,075	7,544	.....	.....	1,608	1,371	3,191	732
Brazil	156,711	147,908	168,234	88,899	115,916	38,985	70,234	71,561	88,164	28,581
Chile	8,669	2,113	7,893	2,885	42,699	65,222	19,930	4,927	6,836	1,008
Cuba	129,896	73,098	101,789	223,392	140,325	77,469	26,893	15,931	27,337	32,526
Egypt	.....	.....	.....	.....	.....	.....	.....	.....	.....	21,306
France	.....	.....	.....	.....	.....	.....	.....	.....	101	.....
French Morocco	.....	.....	.....	.....	.....	.....	.....	.....	198	7,619
Gold Coast	113,737	95,898	112,700	82,408	108,747	144,275	112,102	112,503	138,868	127,448
Greece	.....	.....	.....	.....	.....	.....	.....	.....	.....	178
India	219,756	301,777	231,596	172,385	103,586	160,958	140,007	152,852	172,503	211,662
Iran	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Mexico	515	16,270	26,662	35,619	22,240	18,570	22,805	23,894	23,769	11,524
Mozambique	.....	.....	.....	.....	.....	.....	.....	.....	283	.....
Philippines	30,797	.....	.....	.....	.....	.....	1,141	8,099	6,944	1,748
So. Africa	.....	.....	.....	.....	.....	.....	.....	.....	3	.....
Turkey	.....	.....	.....	.....	.....	.....	.....	.....	.....	473
Union of South Africa	142,838	110,093	58,812	19,028	29,544	113,037	87,154	130,114	131,319	142,859
United Kingdom	.....	.....	.....	.....	.....	.....	.....	.....	31	.....
U.S.S.R.	16,929	9,200	2,341	.....	70,082	121,753	141,975	182,455	71,357	17,590
W. Portuguese Africa, N.E.S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,554
Total imports†	824,956	766,399	729,305	633,197	633,859	740,277	624,431	702,211	673,868	610,680

* Eight months. † Total import figures include small imports from minor producing countries not otherwise listed. Source: Dept. of Commerce.

U. S. MANGANESE ORES

Shipped by U. S. mines, Metallurgical*

State	1939	1940	1942	1943	1944
Ala.	115	64	26	.....	49
Ariz.	.....	348	2,946	5,779	8,519
Ark.	6,009	6,808	4,132	5,319	7,109
Calif.	.....	177	10,112	20,604	21,540
Colo.	.....	251	513	707	.....
Ga.	2,964	4,001	4,890	2,467	1,135
Idaho	.....	.....	.....	36	.....
Mo.	.....	.....	239	180	.....
Mont.	2,512	9,218	120,409	130,789	153,665
Nev.	.....	235	6,112	10,451	21,799
N. Mex.	380	50	1,267	469	273
N. C.	48	.....	.....	140	.....
Okla.	.....	.....	31	265	.....
Oreg.	.....	.....	45	143	.....
S. C.	.....	.....	.....	312	1,400
So. Dak.	.....	.....	81	12	.....
Tenn.	8,183	7,821	2,247	2,501	418
Utah	56	30	970	91	30
Va.	532	1,168	11,024	7,040	20,034
Wash.	11	.....	10,660	7,731	5,199
W. Va.	.....	245	2,240	.....	.....
Wyo.	.....	.....	.....	60	.....
Total	20,810	30,416	177,966	195,096	241,170

State	1945	1946	1947	1948	1949
Ala.	32	.....	.....	.....	.....
Ariz.	1,093	.....	133	240	223
Ark.	6,863	1,101	841	212	2,851
Calif.	1,668	.....	.....	.....	280
Colo.	.....	.....	.....	.....	.....
Ga.	1,056	.....	.....	.....	.....
Idaho	.....	.....	.....	.....	.....
Mo.	.....	.....	.....	.....	.....
Mont.	143,888	129,227	123,490	119,339	107,399
Nev.	960	1,064	67	.....	.....
N. Mex.	3,334	1,166	858	.....	.....
N. C.	.....	.....	.....	.....	.....
Okla.	.....	.....	.....	.....	.....
Oreg.	.....	.....	.....	.....	.....
S. C.	41	78	.....	.....	.....
S. Dak.	.....	.....	.....	.....	.....
Tenn.	.....	.....	39	37	175
Utah	.....	.....	.....	.....	.....
Va.	8,566	321	.....	.....	.....
Wash.	6,994	1,424	.....	.....	.....
W. Va.	.....	.....	.....	.....	.....
Wyo.	.....	.....	.....	.....	.....
Total	174,295	134,381	125,428	119,828	110,928

* In short tons. Source: U. S. Bureau of Mines

WORLD PRODUCTION OF MANGANESE ORE

In Metric Tons, Includes Pct Manganese, World Total, Through 1949

	Percent Mn	1942	1943	1944	1945	1946	1947	1948	1949
U.S.S.R. (estimate)	41–48	1,823,000[3]	1,000,000	461,000	2,251,000	1,700,000	1,800,000	1,900,000	(6)
Gold Coast	50†	691,016	534,362[4]	479,499[4]	713,013[4,5]	777,583[4,5]	598,655[4,5]	640,088[5]	285,501[5, 7]
India	47–52	769,423	604,922	376,251	213,602	256,975	350,000	318,220[5]	551,828[5]
Union of South Africa	30–51	394,445	219,122	106,883	114,546	237,897	288,213	276,393	655,181
Brazil (exports)	38–50	306,241	275,552	146,983	244,849	149,149	142,092	141,253	(6)
United States (shipments)	35†	173,043	186,129	224,632	165,412	130,303	119,409	118,931	114,427
Morocco, French	32–50	44,273	49,010	27,550	45,292	57,080	109,452	214,412	233,830
Cuba	36–50†	249,255	311,214[4]	257,864[4]	198,243	130,764	50,397	29,073	62,503
Japan[2]	32–40	254,254	342,884	400,679	85,700	29,394	33,194	47,500	92,947
Mexico	41–45	40,000	70,503	80,671	51,959	25,000	31,400	53,800	54,671[8]
Chile	40–50	71,292	114,074	43,969	7,445	20,538	19,352	20,498	(6)
World total[1]		5,167,000	4,040,000	2,900,000	4,260,000	3,700,000	3,800,000	3,900,000	4,530,000

† Total world production figures include production of smaller producing countries not otherwise listed and estimates by the Bureau of Mines for countries not reporting.
[2] Preliminary figures.
[3] Estimate excludes Ukraine.
[4] Dry weight.
[5] Exports.
[6] Data not available, estimate included in total.
[7] January to May inclusive.
[8] U. S. imports from Mexico.

Source: U. S. Bureau of Mines

SHIPMENTS OF MANGANIFEROUS ORES

By U. S. Producers in Short Tons, Metallurgical and Battery Ores

Year	Metallurgical Ore: Manganese Ore (35 Pct or more Mn)	Ferruginous Manganese Ore (10 to 35 Pct Mn)	Manganiferous Iron Ore (5 to 10 Pct Mn)	Manganiferous Zinc Residuum	Battery Ore (35 Pct or more Mn)
1939	20,810	268,289	526,067	144,747	8,699
1940	30,416	358,406	914,526	172,990	10,383
1941	73,852	512,162	918,725	282,049	11,399
1942	177,966	265,653	1,500,613	292,051	15,410
1943	195,096	488,862	1,251,275	270,328	*12,704
1944	241,170	296,981	1,190,476	247,402	8,224
1945	174,295	114,327	1,408,527	224,331	8,042
1946	134,381	100,402	1,070,694	205,786	8,295
1947	125,428	128,562	1,044,961	227,547	6,189
1948	119,828	139,580	1,198,523	291,383	10,845
1949	110,928	24,885	1,052,231	158,902	14,983

* Includes 2,731 tons containing 27 pct Mn. Source: U. S. Bureau of Mines

3 METAL FACTS SECTION

Prices: Ferromanganese, Ferrosilicon, Spiegel. Chromite: Production, Prices, Shipments

FERROMANGANESE, 80 PCT

Eastern Producers, Carloads, Gross Ton

	1929	1934	1936	1937	1938	1939
Jan.	$105.00	$85.00	$75.00	$80.00	$102.50	$85.00
Feb.	105.00	85.00	75.00	80.00	102.50	80.00
Mar.	105.00	85.00	75.00	89.00	102.50	80.00
Apr.	105.00	85.00	75.00	95.00	102.50	80.00
May	105.00	85.00	75.00	100.62	102.50	80.00
June	105.00	85.00	75.00	102.50	102.50	80.00
July	105.00	85.00	75.00	102.50	92.50	80.00
Aug.	105.00	85.00	75.00	102.50	92.50	80.00
Sept.	105.00	85.00	75.00	102.50	92.50	95.00
Oct.	105.00	85.00	75.00	102.50	92.50	100.00
Nov.	105.00	85.00	80.00	102.50	92.50	100.00
Dec.	105.00	85.00	80.00	102.50	92.50	100.00
Average	105.00	85.00	75.83	96.84	97.50	86.67

	1940	1942**	1947**	1948	1949	1950
Jan.	$100.00	$120.00	$135.00	$145.00	$161.40	$173.40
Feb.	100.00	120.00	135.00	145.00	161.40	173.40
Mar.	100.00	120.00	135.00	145.00	169.35	173.40
Apr.	100.00	120.00	135.00	145.00	173.40	173.40
May	100.00	135.00	135.00	145.00	173.40	173.40
June	110.00	135.00	135.00	145.00	173.40	173.40
July	120.00	135.00	135.00	145.00	173.40	173.40
Aug.	120.00	135.00	135.00	145.00	173.40	173.40
Sept.	120.00	135.00	135.00	145.00	173.40	173.40
Oct.	120.00	135.00	145.00	162.00	173.40	173.40
Nov.	120.00	135.00	145.00	162.00	173.40	178.60
Dec.	120.00	135.00	145.00	162.00	173.40	181.20
Average	110.84	130.00	137.50	149.25	171.08	174.48

†Seaboard price prior to October 7, 1948.
*Price unchanged at $120.00 through 1941.
**Price unchanged at $135.00 from 1943 through 1946.

50 PCT FERROSILICON

Carloads per Gross Ton, Delivered*

	1929	1937*	1939	1940**	1943*	1944
Jan.	$83.50	$69.50	$69.50	$69.50	$74.50	$6.65
Feb.	83.50	69.50	69.50	69.50	74.50	6.65
March	83.50	69.50	69.50	69.50	74.50	6.65
April	83.50	69.50	69.50	69.50	74.50	6.65
May	83.50	69.50	69.50	69.50	74.50	6.65
June	83.50	69.50	69.50	72.00	74.50	6.65
July	83.50	69.50	69.50	74.50	6.65	6.65
Aug.	83.50	69.50	69.50	74.50	6.65	6.65
Sept.	83.50	69.50	69.50	74.50	6.65	6.65
Oct.	83.50	69.50	69.50	74.50	6.65	6.65
Nov.	83.50	69.50	69.50	74.50	6.65	6.65
Dec.	83.50	69.50	69.50	74.50	6.65	6.65
Average	83.50	69.50	69.50	72.11	6.65	6.65

	1945	1946	1947	1948	1949	1950
Jan.	$6.65	$6.65	$7.45	$9.80	$11.30	$11.30
Feb.	6.65	6.65	7.45	9.80	11.30	11.30
March	6.65	6.65	7.45	9.80	11.30	11.30
April	6.65	6.65	7.80	9.80	11.30	11.30
May	6.65	6.65	7.80	9.80	11.30	11.30
June	6.65	6.65	7.80	9.80	11.30	11.30
July	6.65	7.05	7.80	9.80	11.30	11.30
Aug.	6.65	7.05	7.80	9.80	11.30	11.30
Sept.	6.65	7.05	7.80	9.80	11.30	11.30
Oct.	6.65	7.05	8.80	10.50	11.30	11.30
Nov.	6.65	7.05	8.80	10.50	11.30	12.00
Dec.	6.65	7.05	9.18	10.50	11.30	12.00
Average	6.65	6.85	7.99	9.98	11.30	11.42

† Cents per lb of contained Si, since July 1943. Delivered east of Mississippi only, prior to October 7, 1948.
* Price unchanged at $69.50 throughout 1938.
** Price unchanged at $74.50 throughout 1941 and 1942.

SPIEGELEISEN, 19 TO 21 PCT.

Palmerton, Pa., Carloads, Gross Ton

	1929	1933	1936	1937	1938	1939
Jan.	$31.00	$24.00	$26.00	$26.00	$33.00	$28.00
Feb.	31.00	24.00	26.00	26.00	33.00	28.00
March	31.00	24.00	26.00	28.40	33.00	28.00
April	31.00	24.00	26.00	30.00	33.00	28.00
May	31.00	24.00	26.00	32.25	33.00	28.00
June	31.00	24.00	26.00	33.00	33.00	28.00
July	31.00	27.00	26.00	33.00	28.00	28.00
Aug.	31.00	27.00	26.00	33.00	28.00	28.00
Sept.	31.00	27.00	26.00	33.00	28.00	31.00
Oct.	31.00	27.00	26.00	33.00	28.00	32.00
Nov.	31.00	27.00	26.00	33.00	28.00	32.00
Dec.	31.00	27.00	26.00	33.00	28.00	32.00
Average	31.00	25.50	26.00	31.14	30.50	29.25

	1940*	1946*	1947	1948	1949	1950
Jan.	$32.00	$36.00	$40.00	$47.00	$62.00	$65.00
Feb.	32.00	36.00	40.00	47.00	62.00	65.00
March	32.00	36.00	42.00	48.00	63.20	65.00
April	32.00	36.00	44.00	52.00	65.00	65.00
May	32.00	36.00	44.00	52.00	65.00	65.00
June	34.40	36.00	44.00	52.00	65.00	65.00
July	36.00	36.00	44.00	52.00	65.00	68.00
Aug.	36.00	36.00	46.25	53.00	65.00	65.00
Sept.	36.00	36.00	47.00	60.75	65.00	67.50
Oct.	36.00	36.00	47.00	62.00	65.00	70.00
Nov.	36.00	36.00	47.00	62.00	65.00	70.00
Dec.	36.00	40.00	47.00	62.00	65.00	70.00
Average	34.20	36.50	44.35	54.15	64.35	63.13

* Price unchanged at $36.00 from 1941 through 1945.

WORLD PRODUCTION OF CHROMITE

In Metric Tons

	1942	1943	1944	1945	1946	1947	1948	1949
Union of South Africa	337,620	163,232	88,909	99,090	212,253	373,094	412,783	326,976
U.S.S.R.	400,000[4]	325,000[1]	(2)	(2)	(2)	(2)	(2)	350,000[1]
Philippines, Republic of	60,000[1]	60,000[1]	70,000[1]	(2)	58,000	195,185	256,854	246,744
Cuba	286,470	354,152	192,131	172,626	174,350	159,209	116,624	97,368
Southern Rhodesia	348,314	287,453	277,051	186,318	151,433	154,242	230,703	243,506
Turkey	130,053	165,633	139,397	146,716	103,167	102,875	285,353	434,117
New Caledonia	67,610	46,952	55,229	40,826	24,946	50,530	75,021	75,000[1]
India	50,380	33,789	40,190	31,105	45,510	32,000[1]	(2)	(2)
Sierra Leone	10,726	16,306	9,851	578	33,641[5]	18,000[1]	7,886	(2)
Greece	24,300	15,500	18,295	2,413	8,500	8,000[1]	1,500	3,381
Cyprus (exports)	2,936	7,986	469	1,070	1,158	5,283	6,899	14,875
Yugoslavia	100,000[1]	65,000[1]	(2)	(2)	(2)	(2)	(2)	(2)
Bulgaria	6,500[1]	7,000[1]	(2)	(2)	(2)	(2)	(2)	(2)
Canada	16,393	26,848	24,543	5,221	2,821	1,814	1,497	242
Japan[3]	67,540	58,520	71,135	28,539	7,079	2,347	9,340	(2)
United States	102,400	145,259	41,394	12,676	3,726	860	3,283	393
Albania	5,000[1]	.....	.....	.....	.....	.....	16,500[4]	(2)
Brazil (exports)	5,776	7,813	4,721	1,490	.....	(2)	1,626	(2)
Total World production[1]	2,012,000	1,798,000	1,350,000	1,100,000	1,140,000	1,650,000	2,113,000	1,859,000

[1] Estimate.
[2] Data not available; estimates by Bureau of Mines included in total.
[3] Preliminary.
[4] Planned production.
[5] Exports.

Source: U. S. Bureau of Mines

CHROMITE ORE SHIPMENTS

In Short Tons, Shipments by U. S. Mines

1917	48,972	1934	413
1918	92,322	1935	877
1919	5,688	1936	301
1920	2,802	1937	2,000
1921	316	1938	909
1922	398	1939	4,048
1923	254	1940	2,982
1924	323	1941	14,239
1925	121	1942	112,878
1926	158	1943	160,120
1927	225	1944	45,625
1928	739	1945	13,973
1929	301	1946	4,107
1930	90	1947	948
1931	300	1948	3,619
1932	174	1949	433
1933	944	1950	425*

* Nine months.

Source: Bureau of Mines

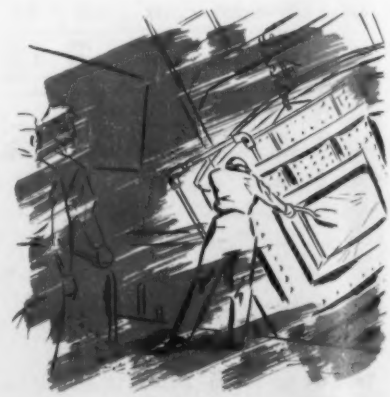
CHROMITE IMPORTS FOR CONSUMPTION

In Short Tons, Cr_2O_3 Content, By U. S.

	1943	1944	1945	1946	1947	1948	1949	1950*
Brazil	4,233	2,008	1,272	.....	.....	860	.....	.....
British West Africa	.....	.....	.....	14,164	8,988	3,481	4,122	.....
Canada	8,016	9,533	1,804	4,090	34	82	.....	.....
Cuba	112,654	123,504	103,482	73,129	59,399	57,813	32,221	23,080
Cyprus	3,729	.....	.....	.....	.....	2,509	.....	.....
French Pacific Isles	.....	.....	.....	.....	.....	.....	.....	22,280
Guatemala	.....	.....	.....	.....	.....	.....	.....	423
India	1,372	.....	.....	8,500	5,065	.....	3,837	.....
Mozambique	.....	.....	.....	.....	.....	.....	.....	6,910
New Caledonia	15,821	16,486	17,806	11,326	10,185	24,884	36,969	.....
Pakistan	.....	.....	.....	.....	.....	.....	.....	4,471
Philippines	.....	.....	.....	10,469	71,793	81,669	102,006	51,498
Southern Rhodesia	116,718	90,251	104,048	47,228	36,402	59,620	44,531	55,688
Turkey	42,363	47,810	34,829	4,328	28,854	119,646	131,634	69,898
Union of South Africa	50,340	17,754	48,265	105,831	118,446	133,498	122,001	95,851
U.S.S.R.	48,227	57,816	86,378	53,391	136,021	190,118	51,424	13,295
Yugoslavia	.....	.....	.....	.....	10,824	5,863	4,844	.....
Total Imports	404,361	365,694	400,742	332,456	485,991	680,723	533,591	343,394

* Eight Months.

Source: Dept. of Commerce



PRODUCTION OF SPIEGELEISEN

In Short Tons, U. S. Output

1930	97,506	1941	177,915
1931	75,936	1942	186,026
1932	41,795	1943	149,036
1933	29,885	1944	185,530
1934	51,261*	1945	139,039
1936	106,553	1946	111,696
1937	151,181*	1947	134,329
1938	12,668	1948	112,610
1939	102,470	1949	78,167
1940	114,119	1950	26,797**

* Shipments from mines.
† Estimated by The Iron Age.
** Nine months. Source: U. S. Bureau of Mines

FERROMANGANESE SHIPMENTS

By U. S. Furnaces, in Short Tons

1931	178,268	1941	619,395
1932	78,867	1942	859,219
1933	142,747	1943	722,658
1934	165,701	1944	715,059
1935	217,982	1945	610,376
1936	361,035	1946	493,808
1937	403,023	1947	614,847
1938	250,566	1948	659,193
1939	322,227	1949	560,180
1940	503,291	1950	501,203*

* Nine months. Source: U. S. Bureau of Mines

FERROSILICON IMPORTS FOR CONSUMPTION

In Short Tons, Silicon Content

1933	1,290	1942	4,337
1934	1,102	1943	901
1935	875	1944	4,189
1936	590	1945	7,191
1937	2,289	1946	1,331
1938	701	1947	2,141
1939	1,160	1948	734
1940	1,235	1949	931
1941	6,190	1950	1,915*

* Nine months. Source: U. S. Bureau of Mines

FERROSILICON PRODUCTION

By U. S. Furnaces, in Short Tons

1934	233,555	1943	818,351
1935	294,856*	1944	700,358
1936	329,774	1945	660,403
1937	405,989	1946	614,422
1938	279,808	1947	769,653
1939	313,560	1948	814,297
1940	409,699	1949	647,981
1941	618,227	1950	542,226†
1942	712,710		

* Shipments.
† Nine months. Source: U. S. Bureau of Mines

CHEMICALLY BONDED MAGNESITE BRICK

Per Short Ton, Baltimore, F.o.b. Plant

	1939	1941*	1947*	1948	1949	1950
Jan.	$57.00	$61.00	$65.00	$75.00	$80.00	$80.00
Feb.	57.00	61.00	65.00	75.00	80.00	80.00
Mar.	57.00	61.00	69.00	75.00	80.00	80.00
Apr.	57.00	61.00	70.00	75.00	80.00	80.00
May	57.00	61.00	70.00	75.00	80.00	80.00
June	57.00	62.00	70.00	75.00	80.00	80.00
July	57.00	65.00	70.00	76.00	80.00	80.00
Aug.	57.00	65.00	70.00	80.00	80.00	83.00
Sept.	57.00	65.00	70.00	80.00	80.00	83.00
Oct.	57.00	65.00	70.00	80.00	80.00	86.00
Nov.	57.00	65.00	70.00	80.00	80.00	88.00
Dec.	57.00	65.00	74.00	80.00	80.00	88.00
Average	57.00	63.00	69.00	77.00	80.00	82.08

* Price unchanged at $65.00 from 1942 through 1948.

FIRST QUALITY FIRE CLAY BRICK

Pa.,* Ky., Mo., Ill., Md., Ohio, F.o.b. Plant**

	1941†‡	1945‡	1946	1947	1948§	1950
Jan.	$47.50	$51.30	$54.40	$65.00	$73.00	$86.00
Feb.	47.50	51.69	54.40	65.00	73.00	86.00
Mar.	47.50	52.85	54.40	65.00	73.00	86.00
Apr.	47.50	52.85	58.90	66.00	73.00	86.00
May	47.50	52.85	60.40	70.00	73.00	86.00
June	48.45	52.85	60.40	70.00	73.00	86.00
July	51.30	52.85	60.40	70.00	74.00	86.00
Aug.	51.30	52.85	60.40	70.00	80.00	86.00
Sept.	51.30	54.45	60.40	70.00	80.00	86.00
Oct.	51.30	54.44	64.08	70.00	80.00	91.16
Nov.	51.30	54.40	65.00	70.00	80.00	94.60
Dec.	51.30	54.40	65.00	72.00	80.00	94.60
Average	49.48	53.13	59.85	69.00	76.00	88.03

† Price unchanged at $47.50 throughout 1939 and 1940.
‡ Price unchanged at $51.30 from 1942 through 1944.
§ Price unchanged at $80.00 through 1949.
* Add $5.00 for Salina, Pa., after May, 1949.
** Carloads, per 100 brick

SILICA BRICK STANDARD GRADE PRICES

Mt. Union, Pa., Ensley, Ala., Carloads per 1000 Brick, F.o.b. plant

	1939*	1941*†	1945†	1946	1947	1948	1949	1950
January	$43.75	$47.50	$51.30	$54.40	$65.00	$73.00	$80.00	$86.00
February	40.00	47.50	51.69	54.40	65.00	73.00	80.00	86.00
March	40.00	47.50	52.85	54.40	65.00	73.00	80.00	86.00
April	47.50	47.50	52.85	58.90	66.00	73.00	80.00	86.00
May	47.50	47.50	52.85	60.40	70.00	73.00	80.00	86.00
June	47.50	48.45	52.85	60.40	70.00	73.00	80.00	86.00
July	47.50	51.30	52.85	60.40	70.00	74.00	80.00	86.00
August	47.50	51.30	52.85	60.40	70.00	80.00	80.00	86.00
September	47.50	51.30	54.45	60.40	70.00	80.00	80.00	86.00
October	47.50	51.30	54.44	64.08	70.00	80.00	80.00	91.16
November	47.50	51.30	54.40	65.00	70.00	80.00	80.00	94.60
December	47.50	51.30	54.40	65.00	72.00	80.00	80.00	94.60‡
Average	45.94	49.48	53.15	59.85	69.00	76.00	80.00	88.03

* Price unchanged at $47.50 through 1940.
† Price unchanged at $51.30 from 1942 through 1944.
‡ Tentative.



BURNED MAGNESITE BRICK

Baltimore, F.o.b. Plant, short ton

	1939	1941*	1947*	1948	1949	1950
Jan.	$67.00	$72.00	$76.00	$86.00	$91.00	$91.00
Feb.	67.00	72.00	76.00	86.00	91.00	91.00
Mar.	67.00	72.00	80.00	86.00	91.00	91.00
Apr.	67.00	72.00	81.00	86.00	91.00	91.00
May	67.00	72.00	81.00	86.00	91.00	91.00
June	67.00	73.00	91.00	86.00	91.00	91.00
July	67.00	76.00	81.00	87.00	91.00	91.00
Aug.	67.00	76.00	81.00	91.00	91.00	93.40
Sept.	67.00	76.00	81.00	91.00	91.00	94.00
Oct.	67.00	76.00	81.00	91.00	91.00	97.00
Nov.	67.00	76.00	81.00	91.00	91.00	99.00
Dec.	67.00	76.00	85.00	91.00	91.00	99.00
Average	67.00	74.00	80.00	88.00	91.00	93.28

* Price unchanged at $76.00 from 1942 through 1946.

CHEM. BONDED CHROME BRICK

Baltimore, F.o.b. Plant, Per Short Ton

	1939	1941*	1947*	1948	1949	1950
Jan.	$47.00	$50.00	$54.00	$64.00	$69.00	$69.00
Feb.	47.00	50.00	54.00	64.00	69.00	69.00
Mar.	47.00	50.00	58.00	64.00	69.00	69.00
Apr.	47.00	50.00	59.00	64.00	69.00	69.00
May	47.00	50.00	59.00	64.00	69.00	69.00
June	47.00	51.00	59.00	64.00	69.00	69.00
July	47.00	54.00	59.00	65.00	69.00	69.00
Aug.	47.00	54.00	59.00	69.00	69.00	71.40
Sept.	47.00	54.00	59.00	69.00	69.00	72.00
Oct.	47.00	54.00	59.00	69.00	69.00	75.00
Nov.	47.00	54.00	59.00	69.00	69.00	77.00
Dec.	47.00	54.00	63.00	69.00	69.00	77.00
Average	47.00	52.00	59.00	66.00	69.00	71.28

* Price unchanged at $54.00 from 1942 through 1946.

3 METAL FACTS SECTION

Minnesota Iron Ore Reserves
Steelmaking Use of Coal, Fuel Oil, Raw Materials

IRON ORE RESERVES OF MINNESOTA

In Gross Tons, Mesabi Range, Vermilion Range, and Cayuna Range

	Mesabi Range	Vermilion Range	Cuyuna Range	Total
May 1, 1920	1,305,926,735	10,927,844	24,819,959	1,341,674,538
May 1, 1930	1,154,434,031	14,250,540	66,542,939	1,235,227,510
May 1, 1940	1,139,314,272	13,841,272	65,431,104	1,218,586,648
May 1, 1945	973,129,581	12,715,183	59,787,900	1,045,632,664
May 1, 1946	935,323,167	11,850,889	59,228,985	1,006,403,041
May 1 1947	937,071,161	11,135,293	56,099,288	1,004,482,442*
May 1 1948	930,828,130	10,760,141	38,430,351	980,412,870*
May 1, 1949	909,484,014	12,515,382	37,718,580	960,265,700
**May 1, 1950				

Note: Figures represent the estimated reserve tonnages as reported by the Minnesota Department of Taxation, and comprise the tonnage of ore in the ground plus the ore in reserve and current stockpiles. The figures do not include ore on state lands that were not under ease as of May 1 of each year: the estimated total tonnage for May 1, 1948 was 3,584,084 tons.

* Includes Fillmore County District: 186,700 tons in 1947; 394,248 tons in 1948 and 548,000 tons in 1949.

** 1950 figures not available.

Source: Minnesota Department of Taxation

Iron Ore Imports (long tons)

1932	582,486
1933	861,153
1934	1,427,521
1935	1,492,436
1936	2,232,229
1937	2,442,089
1938	2,122,466
1939	2,412,515
1940	2,479,328
1941	1,707,811
1942	731,302
1943	399,117
1944	463,532
1945	1,197,925
1946	2,754,216
1947	4,903,494
1948	6,108,754
1949	7,402,157
1950	*7,800,000

* Estimate by U. S. Bureau of Mines.

Source: U. S. Bureau of Mines

COAL USED IN STEELMAKING

In Net Tons for Coke, Steam, Other Production, And Use in Gas Producers

Purpose		1949	1948	1947	1946
Production of coke	Anthracite	139,501	*199,826	290,122	125,428
	Bituminous	73,100,113	*85,261,623	81,893,509	63,603,409
	Total	73,239,614	85,461,449	82,183,631	63,728,837
In gas producers	Anthracite	47,657	77,673	93,858	75,590
	Bituminous	748,219	1,121,619	1,410,092	1,275,536
	Total	795,876	1,199,192	1,503,950	1,351,126
Production of steam	Anthracite	233,771	294,981	323,821	413,493
	Bituminous	7,681,152	9,355,835	8,994,066	7,787,894
	Total	7,914,923	9,650,816	9,317,887	8,181,387
All other purposes	Anthracite	133,323	*259,587	142,140	84,873
	Bituminous	786,557	*1,087,562	1,124,384	1,067,149
	Total	919,880	1,347,249	1,266,524	1,152,022
Total consumption	Anthracite	554,252	*832,067	849,941	709,384
	Bituminous	82,316,041	*96,826,639	93,422,051	73,703,988
	Total	82,870,293	97,658,706	94,271,992	74,413,372

* Revised.

Source: American Iron & Steel Institute

CONSUMPTION OF NATURAL GAS

In Millions of Cu Ft in Melting, Annealing Furnaces for Steelmaking

Purpose	1949	1948	1947	1946
Melting furnaces	36,589	39,278	34,708	30,313
Heating and annealing furnaces	268,444	202,072	195,978	166,787
All other	93,852	33,130	24,776	27,319
Total	398,885	274,480	255,462	224,419

Source: American Iron & Steel Institute

CONSUMPTION OF FUEL OIL

Use by Gallons in Melting and Annealing Furnaces in Steel Industry

Purpose	1949	1948	1947	1946
Melting furnaces	1,272,367,038	1,533,126,862	1,511,944,791	1,225,903,798
Heating and annealing furnaces	425,900,664	524,517,885	507,211,651	390,801,444
All other	137,028,931	137,892,300	148,671,659	166,474,828
Total	1,835,296,633	2,195,539,047	2,167,828,101	1,783,180,070

Source: American Iron & Steel Institute

USE OF ALLOYING MATERIALS

In Pounds; 7 Materials Used in Steelmaking

	Pounds of Total Metal Contained		
	1949	1948	1947
Chromium	148,442,803	212,708,570	179,023,934
Cobalt	991,645	916,953	692,813
Columbium	632,051	796,495	572,406
Molybdenum	11,243,780	16,348,818	13,447,003
Nickel	51,882,941	78,763,848	66,481,899
Titanium	4,222,221	3,784,965	3,335,646
Tungsten	2,170,483	4,313,518	4,027,315
Vanadium	1,079,024	1,550,147	1,320,490
Zirconium	1,440,141	2,069,335	1,833,508

Source: American Iron & Steel Institute

STEELMAKING USE OF FLUXES

In Net Tons Used in Furnaces; Fluorspar, Limestone, Lime, Other Fluxes.

Years	Fluorspar	Limestone	Lime	Other Fluxes	Total
1949	197,018	4,662,526	735,579	179,469	5,775,592
1948	226,594	5,355,906	933,438	230,427	6,746,364
1947	204,392	5,132,400	813,020	219,502	6,369,314
1946	156,056	4,060,870	612,097	184,942	5,015,965

Source: American Iron & Steel Institute

NONFERROUS METALS CONSUMPTION

In Net Tons by the Steel Industry in 1949

Purpose	Copper	Lead	Tin	Zinc
For coating	25,811	2,785	35,377	265,317
All other	37,219	16,457	573	1,702
Total for 1949	63,030	19,242	35,950	267,019
Total for 1948	66,588	22,518	38,363	252,586
Total for 1947	58,239	21,233	37,470	251,132

Source: American Iron & Steel Institute

CONSUMPTION OF TAR AND PITCH

Use by Gallons in Melting Furnaces and Annealing Furnaces in Steel Industry

Purpose	1949	1948	1947	1946
Melting furnaces	270,139,839	287,035,244	259,136,561	169,565,906
Heating and annealing furnaces	4,610,706	4,180,405	3,082,304	3,489,945
All other	5,487,774	5,109,764	3,895,368	5,257,583
Total	280,238,319	296,325,413	286,114,233	173,313,124

Source: American Iron & Steel Institute

CONSUMPTION OF ELECTRIC POWER

Millions of Kw Hours for Iron, Steelmaking

Years	Generated	Purchased	Total
1949	8,124	11,577	19,701
1948	9,766	13,404	23,179
1947	9,204	11,811	21,015
1946	8,030	9,477	17,507

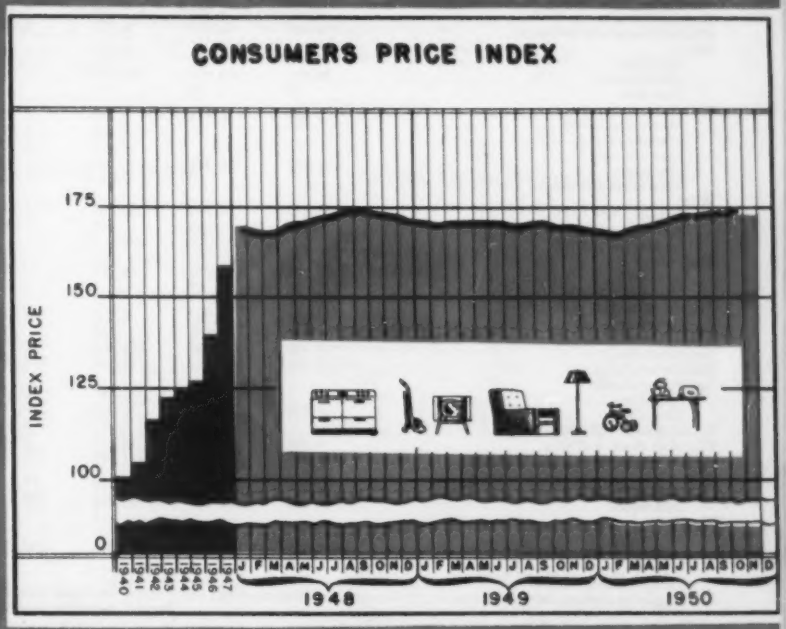
Source: American Iron & Steel Institute

THE IRON AGE 4

SECTION

METAL INDUSTRY FACTS

Metal Products, Automotive, Railroad



IN THIS SECTION:

Page

AGE, FARM TRACTORS 335

AUTO INDUSTRY
- Materials Used 325
- Production 326
- Steel Consumption 324
- Steel shipped for 326

BUILDING SUPPLIES 332

BUSINESS (MFG, WHSL, RTL) 334

CAPACITY, R. R. FREIGHT CARS 328

CAR LOADINGS (R. R. FREIGHT) 328

CONSTRUCTION 332, 333

CONTAINERS, USE OF STEEL 324

CONSUMERS 334

CONSUMPTION, STEEL
- Automobile Industry 324, 325
- Containers 324
- Electric Appliances 324
- Houses 324
- Pianos 325
- R. R. Freight Cars 327
- R. R. Passenger Cars 326
- Refrigerators 325

COOKING APPLIANCES ... 330

DISTRIBUTOR, JOBBER SALES 336

ELECTRIC POWER 331

HEATING APPLIANCES 330

ELECTRICAL APPLIANCES
- Sales 330, 331
- Use of Steel 324
- Value, Retail 330

EMPLOYMENT
- Hours, Earnings, Rates
  - Aircraft 329
  - Appliances 331
  - Automobile Industry 326
  - Farm Machinery 335
  - Railroads 328
  - R. R. Equipment 326
  - Shipbuilding 329

EXPENDITURES 333, 334

FARM MACHINERY 334

HARDWARE, RETAIL 329

HOMES 324, 332

INCOME, DISPOSITION OF . 335

INVENTORIES 334

LOCOMOTIVES, ORDERS ... 326

MOTORS AND GENERATORS 331

NATIONAL DEBT 335

NEW HOUSING 332, 333

ORDERS
- Locomotives 326
- Motors and Generators 331
- R. R. Freight Cars 328

PIANOS, USE OF STEEL 325

PLANTS, NEW 333

PRODUCTION
- Electric Power 331
- Industrial Index 329
- Motor Vehicles 326
- New Housing 332
- R. R. Freight Cars 328
- Tractors 334
- Trucks and Trailers 329

REFRIGERATORS 325, 330

REQUIREMENTS, STEEL. 324, 327

R. R. FREIGHT CARS .. 327, 328

R. R. PASSENGER CARS 326

SALES
- Distributors and Jobbers 336
- Electric Appliances 331
- Hardware, Retail 329
- Household, Appliances 330
- Mfg., Whlsl., Retl. 324
- Refrigerators, Household 330
- Tractors 334
- Vacuum Cleaners 331

SHIPMENTS
- Cooking Appliances 330
- Heating Appliances 330
- Steel, for autos 326
- Trucks and Trailers 329

STEEL
- Consumption 324, 325, 326
- Shipments 326

TRANSPORTATION 333

TRUCKS, TRAILERS 329

VACUUM CLEANERS 331

4 METAL FACTS SECTION

Steel Used in Appliances, Automobiles, Homes, Containers and by the Automobile Industry

STEEL PRODUCTS USED IN ELECTRICAL APPLIANCES

Shipments to Electric Appliance Industry Shown in Net Tons From 1946

Item	1946	1947	1948	1949	1950 9 Months
Ingots, blooms, billets, slabs, sheet bars, and seamless tube rounds	.....	2,092	99	7	139
Wire rods	.....	465	178	142	127
Structural shapes	1,174	1,376	3,321	1,890	1,167
Plates (sheared and universal)	9,400	10,417	8,915	6,205	5,670
Bars:					
Hot-rolled	11,149	14,716	12,567	9,648	12,464
Cold-finished	23,648	44,412	53,609	33,941	36,567
Tool steel	33	35	19	4	1
Pipe and tubes:					
Mechanical tubing	4,940	10,359	5,493	3,818	5,221
Pressure tubing			6,039	2,996	8,590
Standard pipe			13,567	8,756	256
Line pipe	14,775	16,371	382	114	.....
Misc. tubular products			2,910	1,156	.....
Wire:					
Drawn	17,617	21,744	30,741	24,512	40,877
Nails and staples	168	47	559	269	439
Barbed and twisted	.....	.....	4	.....	.....
Black plate:					
Ordinary	8,073	8,738	10,699	6,914	53,587
Chemically treated	20	12	8	.....	
Tin and ternplate:					
Hot dipped	836	1,237	1,696	1,470	9,543
Electrolytic	1,098	1,938	548	290	12,036
Hot-rolled sheets	183,306	307,067	383,015	197,288	238,664
Cold-rolled sheets	457,623	534,642	758,649	575,563	715,417
Galvanized sheets:					
Hot-dipped	48,670	70,939	39,696	29,149	77,135
Electrolytic			26,048	16,123	
Coated sheets—all other			2,423	2,008	15,240
Electrical sheets and strip	5,165	3,316	26,240	14,663	25,639
Enameling sheets	106,266	147,767	187,482	112,733	129,692
Strip:					
Hot rolled	27,392	32,045	28,790	17,643	20,881
Cold rolled	56,343	63,288	98,668	100,937	106,260
All other	.....	.....	3	.....	.....
Total steel products	977,696	1,293,023	1,682,618	1,168,239	1,544,381

* IRON AGE estimate.
† Includes cooking stoves and ranges, refrigerators, washing machines and ironers, and other household appliances.
Source: American Iron & Steel Institute

A lot of the steel used in the products listed here will go into arms production for some time to come. Hints on selling to the armed forces will be found in "How to Sell to Uncle Sam," on p. 269. A list of items bought by the Army, Navy and Air Force and locations of their buying offices begins on p. 371. Government controls are digested on p. 365.

USE OF STEEL IN HOMES

Some Steel Items In Six-Room House

	Lb.
Metal lath	1800
Gas, water and heating pipe	1200
Steel window frames (16 at 50 lb each)	800
Kitchen equipment	800
Stove, refrigerator, sink, table top, kitchen cabinets, ventilators, washing machine, steel tile	
Structural shapes and columns	680
Heating equipment	640
Steel furnace, hot water tank, fuel oil tank	
Nails and miscellaneous wire	600
Door frames and sills	480
Gutters and downspouts	475
Bathroom	300
Bathtub, lavatory, medicine cabinet, shower cabinet, toilet (porcelain)	
Flashing and miscellaneous sheets	200
Steel doors (fire protection)	160
Electrical steel conduit	140
Hardware	90
Locks, knobs, hinges	
Radiator grilles	75
Screens	32
Laundry tubs	10
Total* Lb.	8482

* Some of the items may be lacking in some homes, or may be fashioned of other materials so that the total weight may be less than that which is given.

Source: American Iron & Steel Institute

STEEL USED IN A CONTAINER

Can Steel Contents Weights

Can Types	Gross Weight Used, oz
Paint (1 gal)	15.956
Fruit juice (No. 10)	11.080
Lard (3 lb)	8.288
Vegetable (No. 5)	5.920
Fruit (No. 3)	5.344
Olive oil (square 1 qt)	4.960
Soup (No. 2)	3.808
Grease (1 lb)	3.776
Fish (Tuna No. 1)	3.168
Meat (Square 12 oz)	2.848
Fish (Sardine No. 1 flat)	2.500
Condensed milk	2.480
Baby food	1.998

Note: Can weights are finished weights of the steel content.

Source: American Iron & Steel Institute

STEEL USED BY AUTO INDUSTRY

Production Level Estimates

Number of Cars and Trucks Produced	Estimated Total Steel and Strip Required (net tons)	Estimated Total Steel, All Types Required (net tons)
4,000,000	4,420,000	7,180,000
5,000,000	5,520,000	8,980,000
6,000,000	6,630,000	10,780,000

Source: THE IRON AGE

STEEL FOR AUTOMOBILE PARTS

Bar, Sheet and Strip Requirements

Estimates by THE IRON AGE, based on reports of steel sizes ordered from the mill. Passenger cars differ greatly in size, weight and design. It is not practical to compute averages on the basis of the data given below. The tables, do, however, give an indication of the specific steel requirements of auto plants for certain applications. The tables were compiled from data furnished by several auto producers and their steel suppliers. Some auto parts, oil pans and bumpers, for example, are made of more than one type of steel and the steel may be ordered double width.

	Typical Width, Inches	Gross Weight, lb
Cold-rolled sheet and strip—19 and 20 gage:		
Top	56–64	80–112
Hood top	43–72	60–80
Front fender	45–52	72–90[1]
Rear fender	42	80[1]
Quarter panel	45–59	72–90
Rear deck lid	39–47	44–62
Doors	35–50	36–54[2]
Bumpers	15–24	80 Max.
Oil pan	.....	.....
Hot-rolled sheet and strip—up to 18 gage:		
Floor pan, front	61–81	41–90
Floor pan, intermediate	55	37
Floor pan, rear	62–81	41–60
Oil pan	23–31	10–14
Frame	8–12¾	300–400
Wheel rims	7–9½	.....
Bumpers	6½–13	.....

	Typical Diam. Ordered, In.
Plain carbon hot-rolled bars	
Rear axle	1½
Spark plugs	⅞–1 15/16
Camshafts	1⅞
Connecting rods	1¾
Motor support arm	1½
Crankshaft sprocket	2 21/32

Other auto parts for which carbon hot-rolled bars are usually specified include: Miscellaneous formed and forged parts, steering mechanism parts, engine and clutch parts, etc.

Plain carbon cold-finished bars:	
Transmission shafts	1 5/16–1 43/64
Transmission gear shift lever	1.0
Differential pinion shaft	0.781
Speedometer gear	2.0
Starter shaft	0.634
Spring shackle pins	0.469–½
Gear shifter shaft	¾
Piston pins	⅞

Other applications include: Heater parts, brake cylinder parts, front brake flange bolt, miscellaneous clutch parts, oil pump bracket bolt, door handle insert, door handle shaft, rear spring pin, reverse idler shaft, oil pump drive shaft, stud for rear shock absorber, distributor shaft, window regulator pin and cam thrust plunger.

	Typical Diam. Ordered, In.
Hot-rolled alloy bars	
Axle shafts	1 9/16–1¾
Steering knuckles	1¼–2⅜
Steering arms	1¼–1 13/16
Transmission gears	1 3/16–1¾
Ring gears	3–4
Differential gears	1 5/16–2
Springs, coil	0.592–0.750
Springs, leaf	0.231–0.313x1¾
Universal joint	1¾–1⅞
Propeller shafts	1⅞
King pins	1–8 9/64
Rear axle drive pinion	1 5/16
Cold-finished alloy bars:	
Transmission shafts	1 5/16
Piston pins	⅞
Oil pump drive shaft	½
Differential pinion	2 5/16

[1] Weight of 2 parts.
[2] Total weight inner and outer panel.

STEEL IN A REFRIGERATOR

Use In Parts, Assembled Units, Pounds

Outer shell:	
Cold-rolled sheet	63.57
Cold-rolled strip	4.16
Liner:	
Enameling sheet	30.10
Compressor:	
Cold-rolled sheet	13.19
Electrical sheet	7.46
Provision compartment door:	
Cold-rolled strip	2.30
Cold-rolled sheet	15.75
Evaporator:	
Stainless sheet	10.03
Machine compartment door:	
Cold-rolled sheet	9.80
Condenser:	
Cold-rolled strip (fins)	7.26
Steel tubing	1.50
Condensing unit base assembly:	
Hot-rolled strip	3.91
Vegetable pan:	
Enameling sheet	1.23
Door trim:	
Stainless strip	1.11
Base trim:	
Stainless steel	0.29
Total	171.86

Source: American Iron and Steel Institute

IRON, STEEL IN A PIANO

Gray Iron Castings, Other Types, Pounds

Gray iron castings	194.00
Blued tuning pins:	
224 tuning pins	8.75
Machine screw stock:	
10 lag screws	1.07
76 action screws	0.98
Wood screws	6.80
Piano wire:	
224 strings	6.13
Cold-rolled bar stock:	
3 nose bolts	1.55
Steel stampings	1.02
Coppered pins:	
448 bridge pins	0.82
Nickel plated pins	0.55
Action springs	0.43
Total	222.10

Source: American Iron & Steel Institute

STEEL USED IN A TYPICAL AUTOMOBILE

Estimates From Various Sources of Sheet and Strip, and Total Steel Content

Source		Sheet and Strip	Total Steel
AMA	Materials used in a typical car 1942	....	3385 lb
AISI	Pounds of steel used in a typical car 1942	....	3544
THE IRON AGE	Steel required for a car in the lower price group	1740	2410
Confidential	Estimated steel consumption for a typical car, including scrap, 1941	....	2650
AISI	Steel delivered to the automobile industry 1946-47-48 per vehicle produced. (Inventory changes would affect this figure)	2454*	3992*
GM Research	Steel in typical car	2553	3320

* These figures undoubtedly include steel used for non-automotive applications.

WHAT MAKES AN AUTO

Materials in a 1950 4-Door Sedan

	Total (3824 lb car) (lb)	Approximate Requirements per 1000 lb* (lb)
Steel, Net	2556	669
Steel, Gross	3320[1]*	870
Gray Iron, Net	521	136
Gray Iron, Gross	641[2]*	168
Malleable Iron, Net	99.6	26.0
Malleable Iron, Gross	122.5[2]*	32.1
Aluminum and Alloys	11.4[3]	2.98[3]
Copper	26.0	6.8
Copper Alloys	15.6	4.08
Lead and Alloys	30.4	7.95
Zinc and Alloys	66.1	17.3
Antimony	1.1	.29
Manganese	18.8	4.9
Silicon	17.3	4.52
Chromium, Molybdenum and Nickel	7.2[3]	1.88[3]
Tin	1.37	.36
Fabric	92.3	24.2
Glass	76.3	20.0
Rubber Compounds	205.6	53.6
Plastics	5.2[3]	1.36[3]

[1] Based on an estimated 30 pct scrap loss, believed to be a conservative estimate. Scrap losses on bodies as high as 39 pct have been reported.
[2] Based on a 23 pct scrap loss.
[3] These figures vary over a wide range according to the manufacturer's specifications.
* Data not included in McCuen's paper.

Source: C. L. McCuen, General Motors Research Laboratories

STEEL IN PASSENGER CAR

Pounds of Steel by Type

	Lb.
Hot-rolled bars	532
Cold-rolled bars	81
Wire products	187
Pipe and tubes	10
Structural shapes	30
Hot-rolled sheets and strip	1,652
Cold-rolled sheets and strip	984
Plates	45
Terneplate	43
Total	3,544

Source: American Iron & Steel Institute

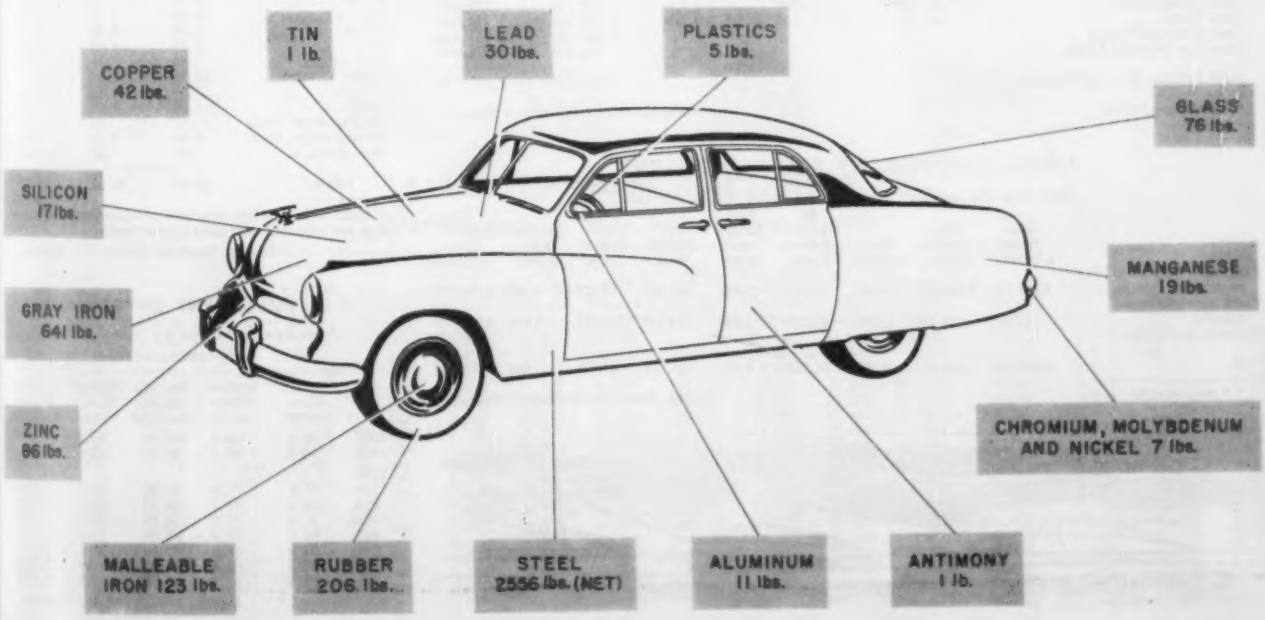
ALLOY STEELS IN AUTO

Typical Materials In Passenger Car

Part	SAE Steels Used
Axle Shafts	T 1330, 8630, 4063, 8640, 8663
Steering Knuckles and Arms	1340, 5130, 8640, 4063, 8630
Gears, Transmission	1340 Cyanided, 4032 Carb., 8620 Carb., 4620 Carb.
Gears, Differential	8620 Carb., 4620 Carb.
Springs, Coil and Leaf	4068, 9260, 5160
Bolts	1335, 4037, 4042, 3140, 8640

It is estimated that a typical passenger car uses from 260 to 280 lb of alloy steel.

MATERIALS USED IN TYPICAL 1950 FOUR-DOOR SEDAN



4 METAL FACTS SECTION

Motor Vehicle Production by Company
Steel Shipped to Auto Industry

MOTOR VEHICLE PRODUCTION ESTIMATE

Estimated U. S. Output Listed By Companies

PASSENGER CARS	1946	1947	1948	1949	10 Months 1950*
Chevrolet	397,113	695,993	775,989	1,109,958	1,292,144
Pontiac	131,538	223,015	253,469	333,954	395,725
Oldsmobile	114,674	191,454	194,755	282,885	331,625
Buick	156,080	267,830	275,504	398,482	461,261
Cadillac	28,444	59,436	66,209	81,545	93,400
Total Gen. Motors	827,849	1,437,728	1,565,926	2,206,824	2,574,175
Plymouth	242,534	350,327	377,797	575,071	477,279
Dodge	156,070	231,804	239,164	298,399	278,078
DeSoto	62,860	81,552	92,920	106,440	101,974
Chrysler	76,693	108,103	119,061	141,825	137,757
Total Chrysler	538,157	771,786	828,942	1,123,735	995,088
Ford	372,917	601,665	549,077	841,170	1,066,845
Mercury	70,955	124,612	154,702	203,339	280,231
Lincoln	13,496	29,275	43,688	33,132	29,210
Total Ford	457,368	755,552	747,467	1,077,641	1,376,286
Total Big Three	1,823,374	2,965,066	3,142,335	4,408,200	4,945,549
Crosley	5,007	19,588	27,982	8,942	6,152
Graham	.....	.....	.....	.....	.....
Hudson	91,215*	100,862	143,697	142,462	114,467
Kaiser-Frazer	11,753	144,507	181,316	57,995	119,325
Nash	98,769	113,315	118,621	142,592	161,525
Packard	41,706	55,477	98,898	104,593	53,894
Studebaker	77,567	123,641	168,755	228,402	228,539
Willys	6,533	33,336	32,701	32,874	31,189
Total Independents	332,550	590,726	769,880	717,860	715,091
Total, Passenger Cars	2,155,924	3,555,792	3,912,215	5,126,060	5,660,640
MOTOR TRUCKS					
Chevrolet	270,151	335,346	389,690	383,543	419,063
GM Truck	33,850	61,918	92,677	83,840	90,944
Pontiac	.....	.....	.....	2,490	1,798
Total Gen. Motors	304,001	397,264	482,367	489,873	511,805
Dodge	133,192	165,905	172,020	151,513	97,261
Ford	198,767	247,832	301,791	244,613	301,783
Total, Big Three	635,960	811,001	956,178	865,999	910,849
Crosley	.....	3,055	2,673	375	439
Diamond T	8,889	16,205	12,684	5,545	5,891
Federal	6,026	10,114	3,898	1,649	1,524
Hudson	3,097	2,918	.....	.....	.....
International	113,546	153,009	166,794	110,572	83,355
Mack	4,855	17,072	11,570	9,025	9,258
Nash	.....	129	1,051	676	488
Reo	16,743	20,349	11,452	3,600	6,689
Studebaker	43,196	67,810	67,983	63,473	41,886
White-Indiana	12,542	18,479	12,507	8,707	11,993
Willys	71,455	86,397	104,989	49,973	37,626
Miscellaneous	25,997	30,162	17,703	12,544	11,220
Total, Independents	306,346	425,699	413,294	266,139	210,351
Total Trucks	942,306	1,236,700	1,369,492	1,132,138	1,121,200
Total, Cars and Trucks	.....	.....	.....	6,258,198	6,781,840
Canadian, Cars and Trucks	.....	.....	.....	290,981	325,879
Total Vehicles, U. S. and Canada	.....	.....	.....	6,549,179	7,107,719

* Preliminary estimate.

Source: Ward's Automotive Reports

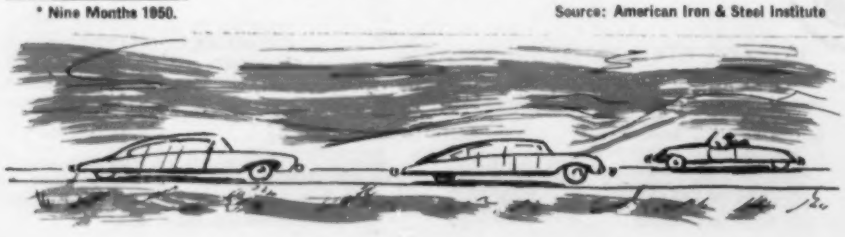
STEEL SHIPPED TO AUTO INDUSTRY

Net Ton Deliveries* for Cars, Trucks, Parts Makers

	Hot-Rolled Sheets	Cold-Rolled Sheets	Galvanized	All Other Coated Sheets	Elec. Sheets and Strips	Hot-Rolled Strip	Cold-Rolled Strip	Enameling Sheets	Total Steel Products
Pass. cars, trucks and other commercial vehicles	1,130,625	2,789,213	13,001	67,601	3,443	281,587	174,377	1,844	6,198,735
Parts, accessories and supplies	1,172,505	994,734	26,505	25,274	5,982	345,513	236,417	2,250	4,128,171
Automotive forgings	.....	.....	.....	.....	.....	.....	.....	.....	402,771
	2,303,130	3,783,947	39,506	92,893	9,425	627,100	410,794	4,094	10,729,677

* Nine Months 1950.

Source: American Iron & Steel Institute



AUTOMOBILE INDUSTRY WAGES

Employment and Average Earnings

	All Employees	Production and Related Workers			
	Number (thousands)	Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	776.2	648.8	$57.45	39.0	$1.473
1948	792.8	657.6	61.86	38.4	1.611
1949	769.0	643.5	65.97	38.9	1.696
1950					
Jan.	797.4	675.4	70.14	40.9	1.715
Feb.	689.0	567.1	67.64	39.6	1.708
Mar.	698.9	575.6	69.08	40.4	1.710
Apr.	720.3	595.3	73.77	42.2	1.748
May	862.4	736.3	69.62	41.0	1.698
June	894.8	763.2	72.37	42.0	1.723
July	883.7	756.7	74.35	42.1	1.766
Aug.	901.8	774.1	75.12	42.3	1.776
Sept.	916.5	790.9	74.01	40.8	1.814

Source: Bureau of Labor Statistics

LOCOMOTIVES ORDERED IN U. S.

Steam, Diesel and Electric

	Steam	Diesel-Electric	Electric	Total
1929	1,055	80	95	1,230
1932	5	7	0	12
1935	30	60	7	97
1936	435	77	24	536
1937	173	145	36	354
1938	36	160	29	225
1939	119	249	32	400
1940	207	492	13	712
1941	302	1,104	38	1,444
1942	363	894	12	1,269
1943	413	635	0	1,048
1944	74	680	3	757
1945	148	691	8	845
1946	55	989	8	1,052
1947	79	2,149	1	2,229
1948	54	2,661*	2	2,717
1949	13	1,785	10	1,808
1950†	15	2,559	12	2,586

* 1948 Diesel orders shown as units. Previous orders shown as locomotives which may include one or more units.
† January through November.

Source: Railway Age

R. R. PASSENGER CARS

Steel Use In Tons Per Car

	Coach	Sleeper Roomette and Bedrooms	Baggage-Express
Billets	1.72	1.82	1.82
Shapes	4.84	4.84	4.77
Plates	5.79	5.79	6.11
Bars	2.84	2.84	2.88
Pipe—steel	.14	.19	.14
Sheets and strip	11.78	12.17	11.72
Wheels	3.80	3.80	3.80
Axles	1.70	2.05	2.05
Steel castings—body	.53	.53	.53
Steel castings—truck	4.89	5.17	5.17
Miscellaneous	.32	.32	.32
Totals	38.35	39.52	38.31

Note: Above covers cars with all-steel frame construction and aluminum and steel interior finish.

Source: American Railway Car Institute

R. R. EQUIPMENT EMPLOYMENT

Average Earnings by Week, Hour

	All Employees	Production and Related Workers			
	Number (thousands)	Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	81.4	66.6	$57.06	40.8	$1.409
1948	84.8	69.6	62.24	40.0	1.566
1949					
Jan.	87.6	71.6	66.50	40.8	1.630
Feb.	86.2	72.1	65.53	40.7	1.610
Mar.	87.5	71.5	64.76	39.9	1.623
Apr.	84.6	68.6	62.42	38.6	1.617
May	83.0	67.4	63.39	39.2	1.617
June	81.3	65.6	62.63	38.9	1.610
July	73.5	58.4	61.16	37.8	1.618

Source: Bureau of Labor Statistics

Steel Requirements For Railroad Freight Cars, Farm Machinery Made In U. S.

METAL FACTS SECTION 4

STEEL REQUIREMENTS FOR RAILROAD FREIGHT CARS

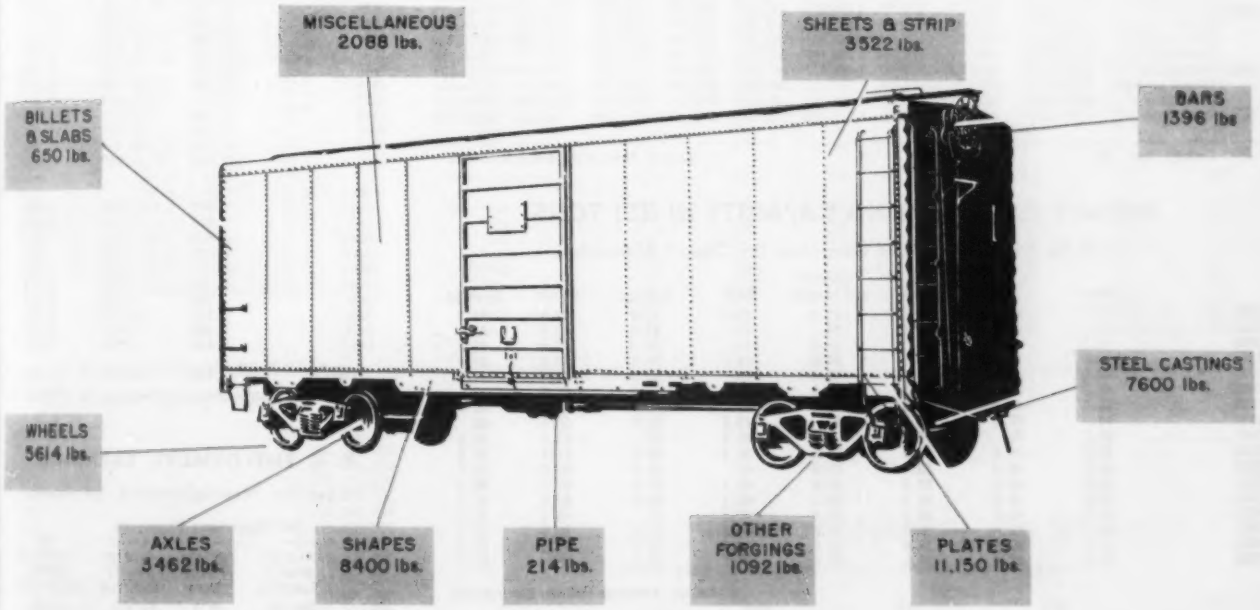
Steel Products Used in Principal Types of Cars, Net Tons

	Box 40' 6" 50-T	Box 50' 6" 50-T	Gen. H. S. 50-T	Gen. L. S. 70-T	Gen. 65' 70-T	Hopper 50-T	Hopper 70-T	Cov. Hopper 70-T	Ore	Flat 50-T	Flat 70-T	Refr. 40-T	Stock 40-T	Tank 10M-Gal ICC-103 50-T	Tank Hi-Press ICC-105 50-T	Average per Car Basis: Cars Delivered 1945-49
Billets and slabs	0.27	0.28	0.36	0.36	....	0.35	0.40	0.31	0.06	0.27	0.32	0.30	0.27	0.30	0.60	0.325
Shapes	4.15	5.14	3.52	5.35	5.40	3.89	4.81	4.96	2.67	5.27	7.32	4.15	4.15	2.50	3.20	4.201
Plates	2.85	2.92	8.71	8.07	12.60	5.87	7.86	6.06	6.66	7.39	8.76	2.85	2.85	10.70	16.60	5.575
Bars	0.63	1.33	0.58	0.78	1.00	0.75	0.75	0.94	1.11	0.87	1.96	0.63	0.63	0.10	0.12	0.696
Pipe	0.10	0.12	0.10	0.13	0.13	0.10	0.10	0.10	0.09	0.11	0.11	0.10	0.10	0.16	0.27	0.107
Sheets and strip	2.97	4.99	0.06	0.06	....	0.29	0.29	3.05	0.03	0.12	0.11	4.60	0.50	0.60	3.60	1.761
Wheels, rolled steel*	2.24	2.24	2.24	2.44	2.44	2.24	2.44	2.44	2.44	2.24	2.44	2.24	2.24	2.24	2.24	2.807
Axles	1.67	1.67	1.67	2.03	2.03	1.67	2.03	2.03	2.03	1.67	2.03	1.41	1.41	1.67	1.67	1.731
Other Forgings	0.46	0.46	0.66	0.66	0.25	0.51	0.60	0.87	0.13	0.41	0.41	0.46	0.46	0.75	0.80	0.548
Steel castings	3.60	3.60	4.25	4.25	3.39	3.60	4.18	4.52	3.60	3.60	4.11	3.60	3.60	3.60	3.60	3.806
Miscellaneous	1.07	1.07	1.05	1.11	0.60	0.93	1.06	1.19	2.33	1.12	1.13	1.07	1.07	1.00	1.10	1.044
Totals	20.01	23.82	23.22	25.26	27.84	20.20	24.52	26.47	21.15	23.07	28.60	21.41	17.28	23.62	33.80	22.081

* If chilled iron wheels used, this amount eliminated.

Source: American Railway Car Institute

STEEL USED IN THE AVERAGE FREIGHT CAR



SELECTED FARM MACHINERY

Manufactured in the U. S. in Number of Units

	Tractor Mold Board Plows	Corn Binders	Corn (Field) Pickers	Silage Cutters	Grain Binders	Grain Threshers	Combines, Harv. and Thresh.	Manure Spreaders	Tractor Cultivators	One Way Disc Plows or Tillers	Hay Loaders	Pickup Hay Balers	Milking Machines	Power Sprayer and Dusters	Field Cultivators	Sweep Rakes
1929	122,697	15,246	8,620	8,065	65,069	13,818	36,957	61,000	34,634	No data	24,920	2,172	24,092	11,324	No data	18,273
1931	26,827	No data	3,243	3,156	15,356	3,954	5,907	19,707	15,631	7,085	10,042	1,311	14,896	5,965	No data	7,118
1935	57,862	19,290	1,845	7,294	47,680	4,619	3,872	31,462	54,519	6,980	8,813	No data	4,217	8,160	4,819	5,244
1936	116,213	19,364	4,052	12,850	66,970	8,622	16,983	53,361	115,957	9,651	22,742	No data	9,841	9,855	5,755	8,508
1937	149,006	16,694	13,586	10,197	32,295	4,996	29,403	60,057	127,188	15,027	27,256	No data	21,502	9,680	11,774	7,094
1938	117,960	12,765	16,722	11,743	47,619	8,849	48,046	27,344	90,780	13,245	17,481	No data	18,787	7,920	11,488	7,508
1939	98,672	5,535	16,044	9,125	15,242	2,781	41,537	33,383	65,547	9,408	15,350	454	22,798	9,904	6,004	4,783
1940	171,896	9,990	11,638	8,507	No data	2,054	46,552	46,075	104,345	14,148	20,226	1,464	44,374	6,845	8,138	6,487
1941	183,497	13,175	18,958	11,403	No data	2,459	54,296	69,618	175,285	17,074	29,930	8,200	55,711	9,915	13,115	9,397
1942	132,131	No data	13,640	8,332	5,171	2,146	41,722	58,681	141,704	11,274	19,428	8,801	37,287	10,363	11,313	9,812
1943	55,182	3,077	12,592	4,163	3,782	668	29,219	17,448	83,802	5,363	11,508	5,418	46,892	7,475	3,718	6,549
1944	121,689	9,709	25,371	8,757	11,317	1,858	44,704	40,522	181,554	12,945	21,065	12,126	78,421	13,875	17,618	14,599
1945	158,158	8,699	35,885	9,006	9,054	1,185	51,418	44,997	191,330	13,122	20,591	12,535	125,413	10,928	21,214	17,899
1946	162,113	7,218	34,554	9,294	No data	2,583	48,811	44,143	151,489	16,731	25,273	11,072	146,203	26,598	22,323	40,045
1947	244,115	No data	66,065	13,222	9,523	1,277	76,638	64,927	245,738	25,670	20,407	26,573	176,195	57,454	39,564	21,358
1948	308,805	No data	78,808	10,709	No data	2,161	90,668	118,206	359,057	35,429	28,472	48,489	128,599	119,952	74,892	14,901
1949	329,453	No data	90,410	7,752	No data	2,062	104,888	128,487	327,244	29,785	13,109	56,849	108,540	73,289	62,569	5,176

Source: U. S. Department of Commerce

4 METAL FACTS SECTION

Railroad Freight Data: Revenue Freight Loaded, Freight Car Carrying Capacity; Freight Cars Delivered; Passenger Cars Ordered

CARS OF REVENUE FREIGHT LOADED, BY PRODUCTS

Grain, Ore, Live Stock, Coal, Coke, Forest Products Shown

Period	Total Revenue Freight Loaded	Grain and Grain Products	Live Stock	Coal	Coke	Forest Products	Ore	Merchandise L.C.L.	Miscellaneous
1929	52,827,925	2,396,195	1,419,191	9,095,271	634,427	3,248,406	2,281,566	13,205,698	20,547,169
1932	28,179,952	1,653,381	949,287	5,338,938	223,766	899,198	210,367	9,069,736	9,835,279
1935	31,504,134	1,577,053	714,495	6,144,691	339,628	1,383,872	1,036,432	8,080,675	12,227,288
1936	38,109,112	1,804,767	759,092	6,937,416	480,043	1,682,582	1,623,008	8,275,977	14,546,227
1937	37,670,464	1,788,966	721,601	6,976,938	507,817	1,828,032	2,207,632	8,465,868	15,173,610
1938	30,457,078	1,967,318	702,920	5,540,739	274,639	1,417,869	845,965	7,681,847	12,025,781
1939	33,911,498	1,940,054	694,246	6,082,520	413,686	1,584,336	1,615,036	7,830,935	13,750,675
1940	36,357,854	1,834,593	685,282	6,819,614	548,686	1,799,650	2,148,428	7,679,389	14,842,212
1941	42,382,127	2,027,824	651,310	7,606,315	678,841	2,189,840	2,682,726	8,039,515	18,476,756
1942	42,771,102	2,185,022	745,180	8,356,430	731,777	2,445,231	3,015,745	5,536,792	19,754,925
1943	42,439,951	2,648,306	837,777	8,507,036	751,687	2,228,907	2,815,572	5,079,720	19,570,944
1944	43,408,295	2,520,733	892,145	8,889,518	750,685	2,271,450	2,648,589	5,427,928	20,007,247
1945	41,918,120	2,733,968	893,525	8,296,208	694,707	2,038,992	2,474,336	5,528,509	19,257,875
1946	41,341,278	2,497,043	924,919	8,004,021	586,890	2,263,246	1,995,721	6,325,295	18,744,143
1947	44,502,188	2,725,655	770,123	9,088,131	732,130	2,414,548	2,651,024	6,071,293	20,049,284
1948	42,833,902	2,467,286	630,873	8,729,745	735,801	2,359,193	2,780,635	5,457,824	19,672,545
1949	35,909,741	2,583,900	551,124	5,217,387	588,181	1,952,294	2,210,337	4,588,485	17,218,033
1950 to Nov. 25	35,270,376	2,209,593	442,246	6,499,434	652,006	2,004,800	2,432,772	3,888,718	17,140,808
1948: First quarter	9,856,383	510,690	124,469	2,155,710	187,379	552,516	182,100	1,394,022	4,749,497
Second quarter	10,910,817	552,185	154,344	2,195,189	170,088	585,696	931,153	1,399,437	4,822,725
Third quarter	11,246,528	740,063	144,110	2,227,097	183,791	653,999	1,021,096	1,327,183	4,949,189
Fourth quarter	10,820,174	664,348	207,950	2,151,749	194,543	566,982	648,286	1,337,182	5,051,134
1949: First quarter	8,987,425	562,133	119,723	1,757,363	196,483	458,307	222,606	1,208,392	4,462,418
Second quarter	9,753,724	622,159	112,749	821,236	169,795	499,311	950,859	1,197,220	4,380,395
Third quarter	9,070,307	762,897	143,368	1,248,681	120,231	493,018	886,050	1,110,096	4,305,966
Fourth quarter	8,098,285	636,711	175,284	1,390,107	101,672	501,658	150,822	1,072,777	4,069,254
1950: First quarter	8,127,115	525,216	103,957	1,480,017	147,090	456,864	147,072	1,041,296	4,225,603
Second quarter	9,760,148	552,226	103,628	1,891,185	185,982	557,694	691,573	1,065,858	4,704,002
Third quarter	10,611,999	683,245	118,840	1,872,773	192,140	617,211	1,062,017	1,095,869	4,969,904
Fourth quarter*	6,771,114	448,906	115,821	1,255,459	126,793	373,031	524,110	685,695	6,241,299

* Through Nov. 25

Source: Assn. of American Railroads

FREIGHT CAR CARRYING CAPACITY IN NET TONS

Data for Principal Types of Cars Used On Class I Railroads

	Box	Flat	Stock	Gondola and Hopper	Tank	Refrig.	Others	Average
1929	41.1	43.2	37.2	53.6	44.7	32.9	51.9	46.3
1932	42.	44.2	37.9	54.	45.	33.4	52.8	47.
1935	43.1	46.1	38.3	54.8	45.	35.2	53.4	48.3
1936	43.5	46.7	38.5	55.2	44.8	35.4	55.8	48.8
1937	43.9	46.9	38.9	55.4	45.	36.2	54.4	49.2
1938	44.2	47.1	39.1	55.6	45.	36.3	54.6	49.4
1939	44.5	47.3	39.3	55.7	45.	36.3	54.1	49.7
1940	44.8	47.7	39.5	56.	45.3	36.9	50.9	50.
1941	45.2	48.	39.5	56.2	45.3	37.	51.2	50.3
1942	45.5	48.6	39.6	56.3	46.1	36.8	51.4	50.5
1943	45.5	48.9	39.6	56.5	46.	36.8	50.8	50.7
1944	45.6	49.1	39.5	56.4	46.1	36.9	49.7	50.8
1945	46.2	49.2	39.5	56.6	46.1	36.9	50.2	51.1
1946	46.3	49.3	39.5	56.6	46.1	37.	49.4	51.2
1947	46.7	49.4	39.5	56.8	46.2	37.1	50.9	51.5
1948	47.1	49.6	39.6	57.2	46.3	37.1	51.4	51.9
1949	47.3	49.9	39.6	57.9	47.1	37.5	52.	52.4

Source: American Railway Car Institute

DOMESTIC RAILROAD PASSENGER CARS ORDERED

Coach, Dining and Combination Type Cars Shown In Data From 1929

	Coach	Coach and Comb.	Baggage and Express	Express Refr. and Milk	Sleeping and Comb.	Parlor, Club, etc.	Dining	Postal and Comb.	All Other	Total
1929	390	98	351	505	490	79	103	184	183	2383
1932	2	1	4	2	1	0	0	4	30	44
1935	14	16	7	55	18	6	10	7	0	133
1936	294	36	35	0	5	26	44	10	1	451
1937	136	23	58	110	171	18	37	8	6	567
1938	85	28	42	0	86	10	15	10	2	278
1939	97	20	9	0	125	18	38	12	2	321
1940	220	26	8	0	53	6	48	13	5	379
1941	164	13	69	0	197	16	36	46	8	549
1942	0	1	2	0	0	0	0	0	31	34
1943	14	2	3	0	0	0	4	12	1650	1685
1944	481	36	20	0	26	18	53	12	101	725
1945	296	17	134	25	570	84	98	54	1767	2993
1946	311	40	22	0	587	53	143	46	36	1238
1947	132	0	22	0	72	36	19	29	8	318
1948	143	0	51	0	156	20	25	10	101	506
1949	46	0	6	0	30	6	14	6	1	109
1950*	16	0	38	0	1	0	0	10	32†	97

* January through November.
† Includes 31 self propelled units

Source: American Railway Car Institute

FREIGHT CARS DELIVERED

Data for Builders and Private Shops

Year	Car Builders' Shops	Railroad and Private Line Shops	Total
1913	172,729	3,320	176,049
1914	91,852	5,774	97,626
1915	46,704	11,522	58,226
1916	100,869	10,647	111,516
1917	99,500	16,205	115,705
1918	52,701	14,362	67,063
1919	82,845	12,136	94,981
1920	46,784	14,171	60,955
1921	39,259	1,033	40,292
1922	63,866	2,423	66,289
1923	146,247	29,501	175,748
1924	104,093	9,618	113,711
1925	94,707	11,028	105,735
1926	78,898	9,964	88,862
1927	54,830	8,540	63,370
1928	38,375	7,685	46,060
1929	68,712	12,878	81,590
1930	65,081	9,839	74,920
1931	7,497	5,706	13,203
1932	482	2,770	3,252
1933	863	1,300	2,163
1934	16,211	8,965	25,176
1935	5,965	1,550	7,515
1936	30,969	15,643	46,612
1937	61,929	15,569	77,498
1938	9,990	6,480	16,470
1939	19,491	5,641	25,132
1940	45,316	17,025	62,341
1941	63,396	17,227	80,623
1942	47,429	15,444	62,873
1943	24,616	7,220	31,836
1944	27,953	15,050	43,003
1945	31,011	12,853	43,864
1946	31,885	10,070	41,955
1947	52,990	15,532	68,522
1948	83,196	29,444	112,640
1949	62,955	29,907	92,862
1950:			
Jan.	1,006	1,389	2,395
Feb.	917	1,129	2,046
Mar.	830	882	1,712
April	223	748	971
May	1,211	982	2,193
June	3,165	709	3,874
July	2,138	1,326	3,464
Aug.	2,787	2,416	5,203
Sept.	2,395	2,736	5,131
Oct.	2,444	3,057	5,501
Total	17,116	15,374	32,490

Source: American Railway Car Institute

R. R. EMPLOYMENT, EARNINGS

Wages for Non-Supervisory Employees

	Non-Supervisory Employees			All Employees Number (thousands)
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	
1947	$54.22	48.3	$1.171	1,352
1948	59.14	48.1	1.284	1,327
1949	60.53	43.1	1.414	1,191
1950				
Jan.	61.69	39.8	1.550	1,148
Feb.	62.37	39.8	1.567	1,123
Mar.	63.73	41.6	1.532	1,148
Apr.	61.69	39.9	1.546	1,188
May	61.75	40.2	1.536	1,135
June	64.19	41.9	1.532	1,240
July	61.19	39.4	1.553	1,246
Aug.	65.46	42.7	1.533	1,272
Sept.	N.D.	N.D.	N.D.	1,294

Source: Bureau of Labor Statistics



SHIPBUILDING EMPLOYMENT

Workers' Average Earnings

	Production and Related Workers				All Employees
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)	Number (thousands)
1947	$57.34	39.6	$1.448	140.6	159.4
1948	60.68	38.7	1.568	123.2	140.7
1949	61.67	37.0	1.623	85.0	100.3
1950					
Jan.	61.46	37.8	1.626	86.1	79.4
Feb.	61.16	37.5	1.631	67.6	81.2
Mar.	62.53	38.2	1.637	68.9	80.2
Apr.	62.08	37.9	1.638	66.6	79.9
May	63.21	38.4	1.640	67.2	80.0
June	62.54	38.3	1.633	68.6	81.1
July	64.20	38.1	1.685	67.9	81.2
Aug.	65.14	39.1	1.666	78.9	92.0
Sept.	63.63	38.4	1.657	78.3	89.2

Source: Bureau of Labor Statistics

AIRCRAFT AND PARTS WAGES

Employment and Average Earnings

	All Employees	Production and Related Workers			
	Number (thousands)	Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	228.6	167.2	$54.98	39.9	$1.378
1948	228.1	166.6	61.21	41.0	1.493
1949	255.6	188.5	63.62	40.6	1.567
1950					
Jan.	251.9	184.3	65.20	40.7	1.602
Feb.	251.7	184.0	65.69	40.7	1.614
Mar.	252.4	184.0	65.29	40.5	1.612
Apr.	253.3	184.9	64.98	40.3	1.612
May	253.9	185.2	65.61	40.8	1.608
June	257.2	186.6	65.20	40.6	1.606
July	259.3	188.1	66.38	41.1	1.615
Aug.	274.0	200.3	68.74	42.2	1.629
Sept.	292.0	215.0	70.96	42.8	1.658

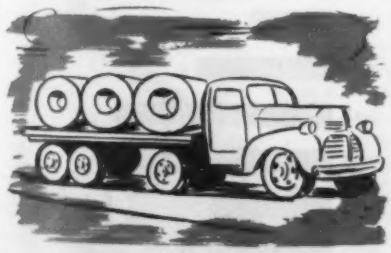
Source: Bureau of Labor Statistics

RETAIL HARDWARE SALES

Annual Listing From 1941

1941	$ 900,000,000
1942	984,000,000
1943	804,000,000
1944	1,025,000,000
1945	1,096,000,000
1946	1,700,000,000
1947	2,216,000,000
1948	2,410,000,000
1949	2,149,000,000
1950: January	127,000,000
February	125,000,000
March	152,000,000
April	171,000,000
May	201,000,000
June	205,000,000
July	205,000,000
August	214,000,000
September	205,000,000
Total—9 Months	1,605,000,000

Source: Dept. of Commerce



FEDERAL RESERVE INDEX OF INDUSTRIAL PRODUCTION

Durable and Nondurable Manufactures, Fuels, Metals

		Manufactures			Minerals		
	Combined Index	Total	Durable Manufactures Total	Nondurable Manufactures Total	Total	Fuels	Metals
1935 monthly av.	87	87	83	90	86	89	73
1936 monthly av.	103	104	108	100	99	98	102
1937 monthly av.	113	113	122	106	112	109	127
1938 monthly av.	89	87	78	95	97	99	96
1939 monthly av.	109	109	109	109	106	105	113
1940 monthly av.	125	126	139	115	117	114	134
1941 monthly av.	162	168	201	142	125	122	149
1942 monthly av.	199	212	279	158	129	125	148
1943 monthly av.	239	258	360	176	132	132	128
1944 monthly av.	235	252	253	171	140	145	113
1945 monthly av.	203	214	274	166	137	143	101
1946 monthly av.	170	177	192	165	134	142	88
1947 monthly av.	187	194	220	172	149	155	118
1948 monthly av.	192	198	225	177	155	161	120
1949 monthly av.	191	115	218	183	145	149	119
1949: Jan.	187	195	225	170	143	156	69
Feb.	185	193	223	163	143	155	76
Mar.	181	190	221	164	131	137	93
Apr.	177	183	212	159	146	148	134
May	174	179	202	160	148	149	142
June	170	176	195	161	137	135	151
July	163	170	186	157	126	125	149
Aug.	173	180	194	169	134	134	135
Sept.	178	188	200	178	123	122	128
Oct.	169	179	176	181	112	120	63
Nov.	174	180	181	178	141	152	76
Dec.	178	186	201	175	128	136	81
1950 monthly av.	193	203	228	183	133	158	124
1950: Jan.	179	189	206	175	125	133	80
Feb.	177	188	204	176	113	118	81
Mar.	183	191	210	177	139	148	83
April	188	197	221	178	138	147	87
May	195	203	232	180	147	148	140
June	200	208	238	184	155	155	155
July	198	207	237	182	149	148	158
Aug.	212	221	249	198	163	162	169
Sept.	215	223	253	199	167	167	171

* IRON AGE estimate.

Source: Federal Reserve Board

TRUCK AND TRAILER PRODUCTION AND SHIPMENTS

Production of Principal Types of Trucking Equipment

	1949		1948		1947		1946	
	Production	Shipments	Production	Shipments	Production	Shipments	Production	Shipments
Total (Including Trailer Chassis)	33,097	24,273	44,476	46,980	53,096	55,372	78,234	73,001
Complete Trailers	31,571	32,747	42,395	44,877	49,795	52,071	70,619	67,386
Vans	18,317	18,999	23,199	23,715	23,254	24,833	34,651	31,577
Insulated and 'Refers'	2,642	2,756	2,279	2,724	1,852	2,474	3,384	3,202
Furniture	14,056*	14,623*	546	616	1,185	855	2,648	2,564
Other Closed Top	.....	.....	18,372	18,968	18,801	19,445	26,590	23,938
Open Top	1,619	1,620	2,002	2,023	1,616	1,759	2,029	1,873
Platforms	6,159	6,469	7,514	9,210	12,555	12,503	19,945	18,814
Cattle and Stake Racks	950	1,094	1,588	1,949	3,369	3,404	8,183	7,550
Grain Bodies	359	502	586	895	1,271	1,167	.....	.....
All Other Platforms	4,850	4,873	5,340	6,366	7,915	7,932	11,762	11,264
Tanks	2,035	2,174	3,550	3,420	3,430	3,802	2,626	2,948
Petroleum	1,855	2,006	3,176	3,042	3,019	3,386	2,231	2,548
Other	180	166	374	378	411	416	395	401
Pole and Logging	1,260	1,309	3,671	3,902	5,356	5,320	7,568	7,586
Single Axle	642	681	2,064	2,184	3,815	3,696	5,970	6,042
Tandem Axle	618	628	1,607	1,718	1,541	1,624	1,598	1,523
Low-Bed Heavy Haulers	1,426	1,433	1,821	1,834	2,405	2,417	1,976	1,967
Off-Highway**	.....	.....	.....	.....	808	795	619	631
Dump Trailers	470	522	504	654	622	797	697	977
All Other Trailers	1,904	1,841	2,136	2,142	1,365	1,604	2,537	2,889
Trailer Chassis	1,526	1,526	2,083	2,083	3,301	3,301	5,615	5,615
Total Dollar Value of Shipments		$119,068,000		$139,996,000		$138,383,063		$151,384,063

* Combined with Other Closed Top. ** Combined with "All Other Trailers" since August, 1948.

Source: Truck-Trailer Mfrs. Assn.

HOUSEHOLD APPLIANCES: SALES AND RETAIL VALUE

Cleaners, Ironers, Ranges, Irons, Refrigerators and Washing Machines

Product	1940		1941		1946		1947		1948		1949	
	Number Sold	Retail Value	Number Sold	Retail Value	Number Sold	Retail Value	Number Sold	Retail Value	Number Sold	Retail Value	Number Sold	Retail Value
Cleaners, vacuum:												
Floor type	1,340,590	$73,155,645	1,670,129	$93,600,906	2,289,500	$155,228,100	3,800,687	$285,368,000	3,500,000	$268,345,000	2,875,000	$219,937,500
Hand type	358,604	5,347,994	383,381	5,726,377	80,000	1,505,880			295,000	7,839,060	190,000	5,272,500
Ironing machines	175,466	10,219,140	259,668	14,489,056	175,000	13,146,000	599,250	75,821,800	470,000	65,221,900	300,000	42,000,000
Irons, total	5,171,000	18,853,500	5,585,000	21,099,750	9,600,000	82,959,000	9,400,000	100,046,000	6,500,000	80,925,000	6,310,000	81,639,500
Automatic	2,597,000	12,959,000	2,900,000	14,790,000	7,000,000	67,645,000	8,000,000	90,400,000	5,850,000	75,757,500	4,850,000	62,837,500
Non-automatic	2,574,000	5,894,500	2,685,000	6,309,750	2,600,000	15,314,000	1,400,000	9,646,000	650,000	5,167,500	495,000	3,440,250
Ranges	450,000	62,775,000	726,000	103,376,000	576,700	107,266,200	1,200,000	276,000,000	1,600,000	376,000,000	1,056,000	242,880,000
Refrigerators	2,600,000	395,200,000	3,500,000	542,500,000	2,100,000	434,700,000	3,400,000	867,000,000	4,530,000	1,177,800,000	4,450,000	1,134,750,000
Washing machines:												
Total	1,552,666	113,156,109	2,014,435	159,329,970	2,123,980	256,283,580	4,281,000	575,814,000	4,710,000	750,200,000	3,200,000	534,178,000
Electric (std. size)	1,454,831	104,485,962	1,892,435	148,556,150	2,047,380	247,303,000	3,657,000	541,236,000	4,285,600	722,123,600	3,065,000	525,188,000
Gas engine (std. size)	97,835	8,670,147	122,000	10,773,820	76,600	8,980,580	126,000	18,144,000	114,400	17,846,400	35,000	5,390,000
Small							498,000	16,434,000	310,000	10,230,000	100,000	3,600,000
Water heaters, storage	125,000	10,125,000	205,000	17,015,000	488,000	58,560,000	1,100,000	143,000,000	1,040,000	143,000,000	695,000	90,350,000

Source: Electrical Merchandising

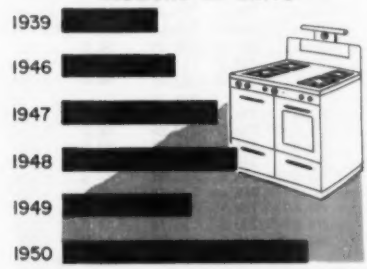
DOMESTIC COOKING APPLIANCE SHIPMENTS

Electric, Gas, Coal, Oil, and Wood Ranges and Cook Stoves

	1939	1946	1947	1948	1949	1950 9 Mos.
Electric Ranges	296,846	576,723	1,043,711	1,383,742	903,806	1,218,186
Gas Ranges	1,502,301	1,691,526	2,268,526	2,579,265	1,954,910	2,123,742
Bungalow Ranges		70,355	70,179	61,428	38,013	29,682
Combination Ranges	100,167	115,642	171,517	128,585	87,022	71,777
Kerosene, Gasoline, Fuel Oil Ranges, Cook Stoves	470,000	516,308	559,579	466,777	185,939	1,012,002
Coal and Wood Ranges and Cook Stoves	633,151	405,107	449,356	295,527	170,741	114,972
Total Unit Shipments	3,002,465	3,375,916	4,562,868	4,895,324	3,340,431	4,570,341

Source: Institute of Cooking and Heating Appliance Manufacturers

GAS RANGE SHIPMENTS
MILLIONS OF UNITS



ELECTRIC HOUSEHOLD REFRIGERATOR INDEX OF SALES

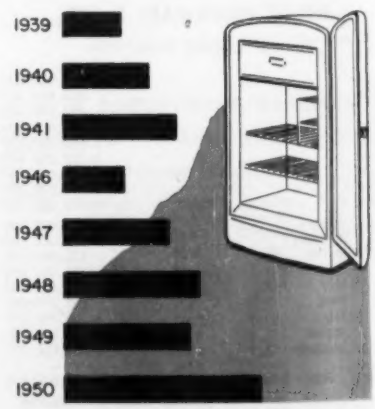
Index of Domestic Refrigerator Sales Billed; Average Month 1936 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Avg.
1934	18.8	43.9	80.9	142.0	148.2	101.2	64.4	43.2	21.3	16.1	15.6	38.9	61.2
1935	56.2	70.8	124.5	155.7	142.8	93.5	89.8	64.1	31.2	25.3	27.3	44.0	77.1
1936	69.4	105.8	156.7	175.0	189.4	136.6	116.0	61.8	46.1	25.5	45.0	70.9	100.0
1937	100.8	144.5	207.4	197.2	196.1	157.6	113.5	70.9	48.7	39.9	52.8	64.5	116.2
1938	61.0	84.3	101.3	123.7	104.4	61.0	51.7	54.1	36.2	20.0	18.7	27.8	62.0
1939	87.9	117.4	142.8	147.7	155.5	152.6	93.2	53.8	41.5	35.2	31.4	52.6	92.6
1940	133.5	159.7	169.7	208.7	236.9	202.0	152.7	126.9	69.2	54.3	49.1	71.0	136.1
1941	231.7	220.8	260.5	297.3	267.3	233.1	211.4	168.5	102.4	82.8	57.3	62.6	183.0
Insufficient data available for computing indexes for the years 1942-1945 inclusive.													
1946		Average first 6 months—71.2					118.1	121.6	128.1	146.7	134.3	136.0	101.0
1947	131.7	113.4	154.3	167.6	176.4	183.0	173.3	133.1	179.7	197.1	181.9	211.2	166.9
1948	181.8	188.2	226.0	219.0	210.5	246.5	231.9	165.8	225.7	249.7	245.4	216.7	218.9
1949	253.1*	224.2	245.3	215.6	220.0	197.1*	209.9	204.6	205.9	168.0	137.4*	160.9	203.5
1950	226.0	280.0	356.0	330.0	328.0	332.0	304.0	293.0	302.0	236.0	n.a.	n.a.	296.7

* Revision. † 10 month average.
n.a.—Not available.

Source: National Electrical Manufacturers Assn.

REFRIGERATOR SALES INDEX



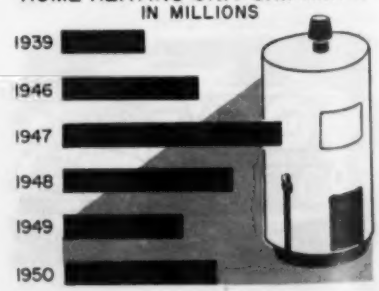
DOMESTIC HEATING APPLIANCE SHIPMENTS

Gas, Wood, Coal, and Oil Heaters Shown

	1939	1946	1947	1948	1949	1950 9 Mos.
Gas	662,850	1,258,600	2,752,465	2,083,990	1,452,834	1,287,255
Wood (sheet metal airtight types)	474,450	866,360	636,209	511,647	519,305	360,566
Coal and Wood (other than sheet metal airtight types)	563,054	760,927	669,439	691,959	432,228	202,342
Kerosene, Gasoline and Fuel Oil:						
Vaporizing pot-type	294,634	1,006,174	1,953,807	1,185,607	713,720	858,833
Sleeve-type	63,481		50,442	49,258	27,692	
Unvented portable type	361,348	312,878	415,967	704,828	513,157	279,655
Total Unit Shipments	2,419,817	4,204,939	6,478,329	5,227,289	3,658,936	2,789,851

Source: Institute of Cooking and Heating Appliance Mfrs.; Dept. of Commerce

HOME HEATING UNIT SHIPMENTS
IN MILLIONS



PRODUCTION OF ELECTRIC POWER IN MILLIONS OF KW-HR

Monthly Averages for Electric Utilities and Industrial Establishments

	Total	Electric Utilities	Industrial Establishments
1935 monthly average	.....	7,941	.....
1936 monthly average	.....	9,110	.....
1937 monthly average	.....	9,909	.....
1938 monthly average	.....	9,484	.....
1939 monthly average	13,442	10,637	2,806
1940 monthly average	14,992	11,820	3,172
1941 monthly average	17,359	13,732	3,627
1942 monthly average	19,429	15,493	3,931
1943 monthly average	22,295	18,147	4,148
1944 monthly average	23,294	19,016	4,278
1945 monthly average	22,605	18,541	4,064
1946 monthly average	22,467	18,598	3,869
1947 monthly average	25,617	21,312	4,305
1948 monthly average	28,067	23,558	4,509
1949: January	30,374	25,550	4,804
February	27,463	22,996	4,467
March	29,514	24,721	4,793
April	27,745	23,215	4,530
May	27,875	23,348	4,526
June	28,025	23,617	4,407
July	27,948	23,684	4,262
August	29,492	25,021	4,471
September	28,358	23,922	4,436
October	28,110	24,288	3,876
November	28,539	24,328	4,268
December	31,096	26,321	4,814
1949 monthly average	28,711	24,251	4,471
1950: January	31,677	26,871	4,805
February	29,789	24,270	4,519
March	31,864	26,997	4,867
April	30,191	25,437	4,754
May	31,486	26,525	4,962
June	31,608	26,685	4,923
July	31,626	26,780	4,845
August	33,874	28,869	5,005
September	32,650	27,774	4,876
1950 monthly average	31,529	26,690	4,839

Source: Federal Power Commission

APPLIANCE EMPLOYMENT

Hours and Average Earnings

	Production and Related Workers				All Employees
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)	Number (thousands)
1947	$51.68	40.6	$1.273	134.8	164.0
1948	56.08	40.2	1.395	125.5	154.8
1949	56.52	39.5	1.431	100.8	128.3
1950					
Jan.	59.09	40.5	1.459	100.6	126.0
Feb.	58.78	40.4	1.455	103.3	128.8
Mar.	58.68	40.3	1.456	104.8	130.5
Apr.	60.34	40.8	1.479	108.1	133.7
May	60.60	41.0	1.478	110.8	136.5
June	57.80	39.7	1.456	110.6	136.6
July	60.24	40.4	1.491	110.1	136.8

Source: Bureau of Labor Statistics

MOTORS AND GENERATORS

Index of Orders Integral HP Units

YEAR	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Avg.
1934	45.8	50.0	46.3	54.0	49.0
1935	54.6	63.0	70.2	70.7	64.6
1936	75.2	109.4	103.2	112.2	100.0
1937	150.5	137.6	110.4	83.9	120.6
1938	68.7	68.4	61.3	67.1	66.4
1939	78.5	82.2	95.8	137.2	98.4
1940	102.7	124.9	147.7	229.4	151.2
1941	260.4	335.7	336.7	329.4	315.5
1942	457.0	664.8	554.4	435.6	527.9
1943	560.2	373.0	400.1	414.0	436.8
1944	284.6	341.8	345.2	314.1	321.4
1945	293.9	274.7	234.8	307.4	277.7
1946	288.1	418.1	468.0	492.8	416.7
1947	459.1	393.7	308.2	391.6	388.1
1948	294.8	329.2	289.9	301.2	303.8
1949	262.0	239.6	223.8	232.2	239.4
1950*	338.0	337.0	551.0	.....	408.7†

* 9 month average

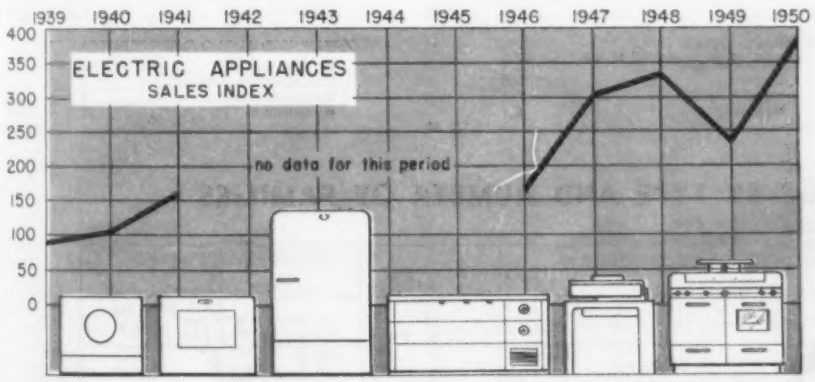
Source: National Electrical Manufacturers Assn.

VACUUM CLEANER SALES

Floor Uprite, Cylinder, Hand Units

Year	Floor Uprite & Cylinder, Units	Hand, Units
1929	1,253,112	142,543
1930	960,343	209,996
1931	687,250	191,047
1932	447,056	110,232
1933	580,644	191,818
1934	697,890	246,009
1935	850,109	294,441
1936	1,084,656	361,461
1937	1,210,191	421,121
1938	967,002	295,610
1939	1,084,805	312,035
1940	1,340,590	358,604
1941	1,670,129	383,381
1942	579,567	85,167
War Years 1943-44-45		
1946	2,289,441	80,053
1947	3,800,687	186,457
1948	3,360,849	289,923
1949	2,689,518	191,110
1950: Jan.	249,150	18,946
Feb.	263,515	13,042
Mar.	361,014	17,172
Apr.	292,664	15,549
May	279,645	14,990
June	250,190	13,479
July	279,967	22,490
Aug.	341,232	28,536
Sept.	327,524	20,186
(9 Mos.)	2,643,901	162,390

Source: Vacuum Cleaner Manufacturers Assn.



ELECTRIC APPLIANCES—MONTHLY SALES INDEX

Major Domestic Unit Sales Billed; Average Month 1936 = 100

Year	January	February	March	April	May	June	July	August	September	October	November	December	Average
1934	32.2	42.1	62.1	68.8	72.3	59.5	49.8	54.4	56.8	52.3	43.8	42.9	53.1
1935	43.3	58.8	82.4	93.4	100.1	77.3	70.7	72.8	75.7	83.4	69.0	66.6	74.5
1936	83.5	75.8	122.2	121.8	126.2	113.4	99.0	92.1	106.2	103.4	82.2	94.4	100.0
1937	95.2	104.4	170.4	163.0	148.3	144.4	117.1	102.9	109.1	90.9	62.5	58.1	113.9
1938	68.2	76.3	93.6	85.9	79.3	74.2	67.4	76.1	74.1	75.0	61.2	59.3	74.2
1939	87.5	90.9	111.2	93.9	102.7	95.7	73.1	86.8	92.2	93.3	78.6	65.2	89.2
1940	107.3	110.5	124.8	126.7	131.1	108.5	94.8	95.9	107.0	116.5	88.1	86.6	106.2
1941	133.5	146.1	179.1	191.2	188.1	186.4	185.5	148.0	179.2	145.8	116.1	131.5	160.4
Insufficient data available for computing indexes for the years 1942-1945 inclusive													
1946	105.3	84.3	102.3	128.3	121.4	166.6	181.9	206.6	197.3	234.0	229.2	215.6	164.5
1947	223.6	247.3	301.3	308.2	310.1	329.8	280.7	265.8	343.8	377.8	333.1	352.2	305.9
1948	324.8	329.6	389.7	341.1	318.3	358.5	275.8	334.0	387.7	363.8	341.8	279.3	337.6
1949	265.0	252.4	265.8*	203.4*	194.8*	226.0*	189.9*	239.8*	288.8*	266.5*	227.8*	237.7	236.1
1950	275.0	327.0	409.0	359.0	371.0	395.0	345.0	391.0	430.0	399.0	n.a.	n.a.	370.1†

* Revised. † 10 month average. n.a.—Not available.

Source: National Electrical Manufacturers Association

WHAT HOUSES ARE MADE OF

FHA Analysis of Components of Construction—a Partial List of Applications

For houses distributed according to design and relative use of materials on a national basis. The percentage of houses in 1000 using the material are listed under each component.

	Pct of Use Per 1000	Total Pct
BASEMENT GIRDERS		
Full basement		
Wood	36.2	
Steel	18.8	55.0
Partial and no basement		
Wood	45.0	45.0
		100.00
BASEMENT COLUMNS		
Full Basement		
Wood	19.6	
Steel	24.6	
Masonry	10.2	55.0
Partial basement		
Wood	5.1	
Steel	6.5	
Masonry	2.6	14.2
No basement		
Masonry piers	30.8	30.8
		100.00
BASEMENT WINDOWS		
Wood	24.2	
Steel	45.0	
No windows	30.8	100.00
WINDOWS ABOVE BASEMENT		
Wood	91.3	
Steel	8.7	
		100.00
GUTTERS & DOWNSPOUTS		
Galvanized steel	60.6	
Copper	6.7	
Wood with copper downspouts	5.7	
No gutters or downspouts	26.0	
		100.00
LATH & PLASTER		
Metal lath	1.3	
Wood lath	33.1	
Sheet lath	55.6	
Dry wall	9.8	
Dry wall and plaster	0.2	
		100.00

	Pct of Use Per 1000	Total Pct
ELECTRIC WIRING		
Knob & Tube	27.4	
BX cable	30.2	
Romex cable	24.4	
Flexible conduit	8.8	
Rigid conduit	8.8	
BX cable and flexible conduit	0.4	
		100.00

PLUMBING

Fixture	Cast Iron	Steel
1 bathroom (4 fixtures)*	73.7	6.1
1½ bathroom (6 fixtures)	11.0	0.9
2 bathrooms (7 fixtures)	6.3	0.5
2½ bathrooms (9 fixtures)	1.4	0.1
	92.4	7.6

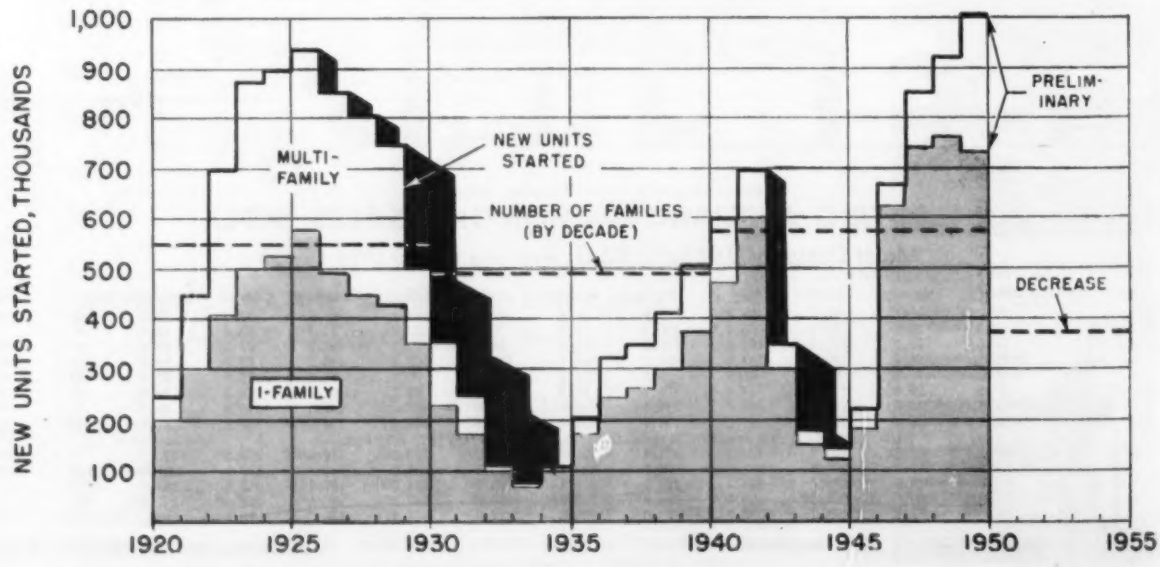
100.00

* Each fixture count includes one kitchen sink.

STALL SHOWER		
Included	23.8	
No stall shower	76.2	
		100.00
TUB SHOWER		
Included	55.8	
No tub shower	44.2	
		100.00
LAUNDRY TRAYS		100.00
WATER PIPES		
Galvanized steel	70.0	
Wrough iron	0.6	
Copper	20.7	
Brass	8.7	
		100.00
SOIL PIPE UNDER BASEMENT		
Cast iron	95.7	
Terra cotta	4.3	
		100.00
STORAGE TANKS		
Galvanized steel	82.2	
Copper	6.9	
Monel	2.8	
No tanks	8.1	
		100.00

	Pct of Use Per 1000	Total Pct
HEATING		
Warm air		
Gravity type furnace		
Steel	2.2	
Cast iron	21.3	23.5
FORCED AIR FURNACE		
Steel	19.0	19.0
Pipeless furnace	0.7	
Floor furnace	21.6	
Space heater	10.0	
Stoves	2.2	34.5
HOT WATER		
Gravity type		
Steel pipe	7.1	
Wrought iron pipe	0.3	7.4
Forced		
Steel pipe	3.0	
Wrought iron pipe	0.2	
Copper pipe	1.8	4.8
STEAM SYSTEM		
Steel pipe	8.3	
Wrought iron pipe	0.4	
No heating system	2.1	10.8
		100.0
BOILERS		
Steel	9.8	
Cast iron	11.1	
No boiler	79.1	100.00
STANDING RADIATION		
Hot Water		
Gravity		
Exposed cast iron	7.4	7.4
Forced		
Exposed cast iron	2.6	
Concealed cast iron	1.7	
Concealed copper	0.5	4.8
STEAM		
Exposed cast iron	4.7	
Concealed cast iron	3.0	
Concealed copper	1.0	8.7
No radiators	79.1	79.1
		100.00

NEW DWELLINGS BY TYPE AND NUMBER OF FAMILIES



EXPENDITURES FOR NEW CONSTRUCTION BY TYPE

Spending for Private, Public, Utility, and Military Construction

Type of Construction	Expenditures (in millions of dollars)										
		1950 (Nine Month Total)	1950								
	1949		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.
Total new construction[2]	22,594	20,082	1,712	1,818	1,750	1,989	2,283	2,535	2,675	2,771	2,749
Private construction	16,204	15,039	1,298	1,262	1,313	1,483	1,690	1,883	1,997	2,050	2,059
Residential building (nonfarm)	8,290	9,121	742	717	741	882	1,035	1,171	1,253	1,266	1,294
Nonresidential building (nonfarm)	3,228	2,595	257	252	249	249	275	306	324	332	351
Industrial	972	703	69	70	69	70	73	78	83	90	101
Commercial	1,027	861	79	77	77	76	92	110	117	113	120
Warehouses, office and loft buildings	321	264	28	27	25	24	26	28	32	35	39
Stores, restaurants and garages	706	597	51	50	52	52	66	82	85	78	81
Religious	360	291	31	29	28	28	31	33	35	38	38
Educational	269	208	23	22	21	20	21	23	24	26	28
Social and recreational	262	182	20	18	17	17	19	21	23	24	23
Hospital and institutional	202	253	25	26	27	28	29	30	30	29	29
Hotel	136	97	10	10	10	10	10	11	12	12	12
Miscellaneous											
Farm construction	1,292	859	74	75	79	88	100	108	113	116	106
Public utilities	3,316	2,367	216	209	235	253	267	285	296	305	301
Railroad	352	229	22	16	21	26	27	28	29	30	30
Local transit											
Pipeline	2,431	1,782	164	161	176	187	199	215	222	230	228
Electric light and power											
Gas											
Telephone and telegraph	533	356	30	32	38	40	41	42	45	45	43
Public construction	6,390	5,092	414	356	437	506	593	652	678	721	735
Residential building	359	253	35	26	28	28	28	26	24	27	29
Nonresidential building	2,056	1,644	155	154	170	178	187	191	196	204	209
Industrial	177	128	7	7	11	13	17	16	18	19	20
Educational	934	819	80	79	84	87	90	94	98	102	105
Hospital and institutional	477	350	37	38	40	40	40	39	37	39	40
Miscellaneous	468	347	31	30	35	38	40	42	43	44	44
Military and naval facilities	137	86	9	9	8	9	8	10	10	11	12
Highway	2,129	1,740	90	55	100	145	210	250	275	305	310
Sewage disposal	619	479	49	46	49	52	54	55	56	58	60
Water supply											
Miscellaneous public service enterprises	203	131	12	10	11	13	15	17	18	18	17
Conservation and development	792	685	56	49	62	73	82	92	91	90	90
All other public	95	74	8	7	9	8	9	9	8	8	8

[1] Not shown separately.

[2] Less than $500,000.

Source: Dept. of Commerce, Dept. of Labor

TRANSPORTATION SPENDING

Plant, Equipment Expenditures

	Railroad	Other Transportation	Electric and Gas Utilities	Commercial and Miscellaneous
1935	$ 168	Included in		$1,784
1936	308	Commercial		2,320
1937	524	and		2,876
1938	240	Miscellaneous		2,452
1939	290	$280	$480	1,850
1940	440	392	552	1,980
1941	560	340	710	2,490
1942	540	260	690	1,472
1943	480	192	540	732
1944	580	280	492	972
1945	550	320	630	1,480
1946	572	660	1,040	3,360
1947	1,010	800	1,900	4,430
1948	1,210	710	2,680	8,380
1949	1,350	820	3,140	8,120
1950	1,130	410	3,170	4,700

Source: Securities & Exchange Commission; U. S. Dept. of Commerce

NEW HOUSING STARTS

Monthly Starts of Non-Farm Units

Month	New Non-Farm Units Started			
	1947	1948	1949	1950
January	39,300	53,500	50,000	78,700
February	42,800	50,100	50,400	82,800
March	56,000	78,400	69,400	117,300
April	67,100	99,500	88,300	133,400
May	72,900	100,300	95,400	149,100
June	77,200	97,800	95,500	144,300
July	81,100	95,000	96,100	144,000
August	88,300	88,600	99,000	141,000
September	93,800	82,200	102,900	115,000
October	94,000	73,400	104,300	103,000
November	79,700	63,600	95,500	90,000*
December	58,800	52,900	78,300	71,000*
Total	849,000	931,300	1,027,100*	1,369,700*
Monthly av.	70,750	77,600	85,597*	114,142*

Source: U. S. Department of Labor

* IRON AGE estimate.

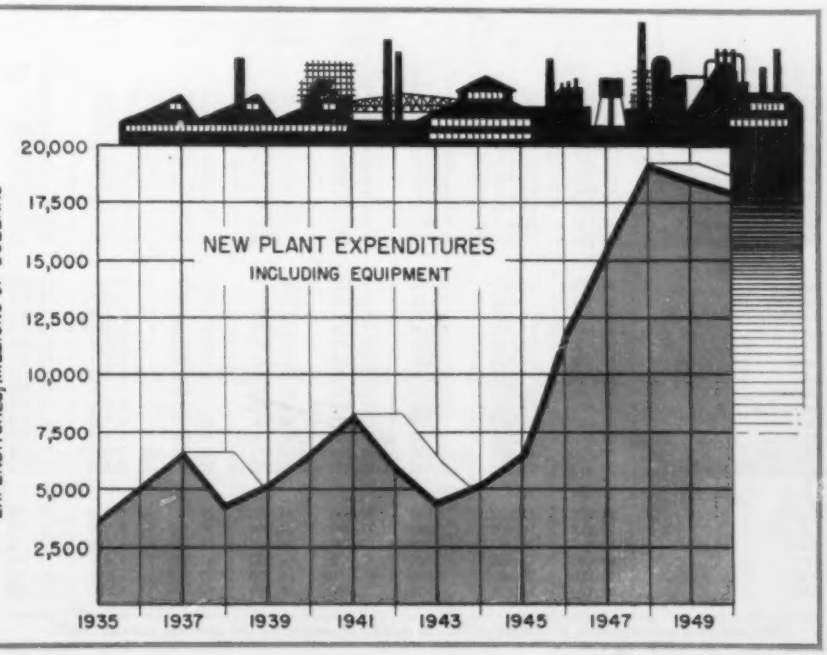
PLANT, EQUIPMENT SPENDING

Expenditures In Millions

	Total All Industries	Manufacturing	Mining
1935	$3,744	$1,792	(1)
1936	5,080	2,452	(1)
1937	6,732	3,332	(1)
1938	4,524	1,832	(1)
1939	5,200	1,930	$380
1940	6,504	2,560	560
1941	8,190	3,400	680
1942	6,124	2,780	412
1943	4,538	2,252	360
1944	5,218	2,392	500
1945	6,630	3,210	440
1946	12,044	5,912	560
1947	16,300	7,460	700
1948	19,230	8,350	800
1949	18,120	7,250	740
1950	17,670	7,800	650

[1] Included in manufacturing.

Source: Securities & Exchange Commission; U. S. Dept. of Commerce



4 METAL FACTS SECTION

Consumers Expenditures Classified: Sales and Inventories, Tractor Output and Sales

CONSUMER EXPENDITURES, CLASSIFIED

Annual Rates in Billions of Dollars From 1935

	Total	Durable Goods			Nondurable Goods						Services					
		Automobiles and Parts	Furniture and Household Equipment	Other Durable Goods	Clothing and Shoes	Food and Alcoholic Beverages	Gasoline and Oil	Semi-durable Housefurnishings	Tobacco	Other Nondurable Goods	Household Operation	Housing	Personal Service	Recreation	Transportation	Other Services
1935	56.2	1.9	2.5	0.8	5.9	16.3	1.7	0.5	1.4	3.5	3.0	7.6	1.2	1.3	1.5	7.1
1936	62.5	2.3	3.1	1.0	6.5	18.5	1.9	0.7	1.5	3.8	3.2	7.9	1.3	1.4	1.7	7.7
1937	67.1	2.4	3.4	1.2	6.7	20.0	2.1	0.7	1.7	4.0	3.5	8.4	1.5	1.6	1.8	8.2
1938	64.5	1.6	3.0	1.1	6.6	19.0	2.1	0.6	1.7	3.9	3.4	8.7	1.4	1.5	1.7	7.9
1939	67.5	2.1	3.4	1.2	7.0	19.3	2.2	0.8	1.8	4.2	3.6	8.9	1.4	1.6	1.9	8.1
1940	72.1	2.1	3.8	1.3	7.4	20.7	2.3	0.8	1.9	4.5	3.8	9.2	1.6	1.7	2.0	8.3
1941	82.3	3.3	4.8	1.6	8.8	24.4	2.6	1.0	2.1	5.1	4.0	9.9	1.8	1.8	2.2	8.9
1942	91.2	0.7	4.5	1.9	11.0	30.5	1.9	1.1	2.3	6.0	4.5	10.6	2.1	2.1	2.7	9.3
1943	102.2	0.8	3.8	2.2	13.7	35.3	1.2	1.3	2.6	6.9	5.0	11.1	2.5	2.3	3.5	10.1
1944	111.6	0.9	3.7	2.5	15.3	38.9	1.2	1.4	2.6	7.7	5.6	11.7	2.7	2.7	3.7	11.1
1945	123.1	1.1	4.4	3.0	17.1	43.0	1.6	1.4	2.9	8.8	6.1	12.2	2.9	3.0	3.9	11.6
1946	147.8	4.4	8.2	3.9	18.6	51.0	3.0	1.8	3.5	8.9	6.3	13.1	3.5	3.7	4.5	13.4
1947	166.9	7.2	10.8	4.0	19.1	57.8	3.5	1.9	3.9	10.0	7.0	14.5	3.7	3.9	4.8	14.9
1948	178.8	8.2	11.4	4.0	20.0	61.1	4.1	1.9	4.1	10.9	7.7	15.9	3.7	3.9	5.1	15.8
1948: First quarter†	175.2	7.5	11.2	3.9	19.3	61.0	3.9	1.9	4.1	11.1	7.6	15.4	3.7	3.9	5.0	15.8
Second quarter	178.7	8.0	11.9	4.0	20.2	61.2	4.2	1.9	4.1	10.9	7.6	15.8	3.7	3.9	4.9	16.6
Third quarter	180.3	8.7	12.1	4.0	19.9	60.5	4.2	2.0	4.3	10.9	7.7	16.0	3.7	4.0	5.2	17.2
Fourth quarter	180.9	8.5	10.4	3.9	20.5	61.7	4.3	1.9	4.1	10.8	7.9	16.3	3.7	4.1	5.3	17.6
1949	178.4	9.4	10.2	3.8	19.3	60.0	4.2	1.9	4.1	10.1	8.0	17.1	3.7	4.0	5.2	18.1
1949: First quarter	177.9	8.6	10.2	3.7	19.3	60.0	4.1	2.0	4.1	10.4	8.1	16.6	3.6	4.0	5.2	17.9
Second quarter	178.2	9.6	10.1	3.8	19.1	59.2	4.2	1.8	4.1	10.1	8.0	17.0	3.7	4.0	5.1	18.1
Third quarter	179.0	10.2	11.0	3.6	18.0	58.4	4.7	1.8	4.3	10.4	8.3	17.3	3.7	4.0	5.1	18.3
Fourth quarter	180.6	10.4	11.3	3.7	18.1	58.3	4.8	1.8	4.3	10.5	8.5	17.6	3.7	3.9	5.1	18.6
1950: First quarter	182.4	10.8	12.5	3.6	17.7	58.3	4.9	1.9	4.3	10.5	8.8	17.9	3.7	3.8	5.1	18.8
Second quarter	185.2	11.0	12.0	3.6	18.4	59.1	5.1	1.9	4.3	10.6	9.0	18.1	3.7	3.9	5.1	19.2
Third quarter	198.5	13.5	16.2	3.8	19.7	62.5	5.2	2.3	4.3	10.9	9.3	18.4	3.7	3.8	5.1	19.6

† Seasonally adjusted, quarterly totals, at annual rates.

Source: Dept. of Commerce

BUSINESS SALES AND INVENTORIES (Millions of Dollars)

Manufacturing, Wholesale and Retail Trade, Monthly Figures†

	Business Sales				Business Inventories, Book Value—End of Month			
	Total Business Sales	Manufacturing (total)	Wholesale Trade (total)	Retail Trade (total)	Total Business Inventories	Manufacturing (total)	Wholesale Trade (total)	Retail Trade (total)
1935 monthly average			$1,965	$2,733				$4,384
1937 monthly average			2,649	3,512				5,339
1939 monthly average	$11,120	$5,112	2,505	3,503	$19,168	$10,782	$3,031	5,355
1940 monthly average	12,515	5,859	2,790	3,866	21,041	12,047	3,276	5,718
1941 monthly average	16,446	8,172	3,650	4,624	25,194	14,559	3,793	6,842
1942 monthly average	19,165	10,346	4,016	4,803	30,725	18,387	4,066	8,272
1943 monthly average	22,243	12,603	4,330	5,310	30,017	19,200	3,537	7,280
1944 monthly average	23,705	13,402	4,505	5,798	30,816	19,612	3,719	7,485
1945 monthly average	23,535	12,371	4,777	6,387	29,885	18,577	3,760	7,576
1946 monthly average	26,557	12,020	6,138	8,399	33,996	20,177	4,795	9,239
1947 monthly average	32,836	15,671	7,304	9,861	45,046	26,243	6,917	12,034
1948 monthly average	36,283	17,587	7,867	10,829	51,916	29,830	8,053	14,126
1949								
January	33,270	16,691	7,163	9,416	54,113	32,062	8,527	13,524
February	32,144	16,424	6,802	8,918	54,479	32,070	8,567	13,842
March	36,120	18,107	7,489	10,524	54,791	31,793	8,445	14,553
April	34,848	16,763	6,962	11,123	53,801	31,266	8,186	14,349
May	34,149	16,295	7,077	10,777	52,646	30,903	7,912	13,863
June	34,442	16,538	7,086	10,820	51,510	30,304	7,774	13,432
July	31,855	15,010	6,603	10,242	50,397	29,692	7,830	12,875
August	37,100	18,900	7,500	10,700	54,600	31,600	9,100	13,900
September	37,200	18,900	7,500	10,900	54,600	31,100	9,200	14,400
October	34,600	16,800	7,100	10,700	54,400	30,700	9,100	14,500
November	35,500	17,300	7,600	10,600	54,000	30,500	9,100	14,300
December	34,700	16,900	7,300	10,500	53,600	30,900	9,000	13,700
1949 monthly average	34,661	17,052	7,182	10,435	53,578	31,074	8,566	13,937
1950								
January	35,700	17,600	7,200	10,900	54,100	31,100	9,000	14,000
February	36,600	18,000	7,300	11,100	54,000	31,100	9,000	13,800
March	37,900	19,100	7,700	11,100	54,500	31,100	9,200	14,200
April	36,900	18,500	7,400	11,100	54,800	31,200	9,400	14,100
May	40,000	20,700	8,000	11,300	55,400	31,500	9,500	14,400
June	41,200	21,200	8,300	11,700	56,300	32,100	9,500	14,800

† Business sales and inventories are defined as the sum data for manufacturing and wholesale and retail trade.

Source: U. S. Dept. of Commerce

FARM TRACTOR PRODUCTION

Domestic Output; Nonfarm Excluded

	Wheel Type		Track Type	Total All Farm
	Conventional	All Purpose		
1929	195,980	.....	27,101	223,081
1931	38,109	25,831	7,089	69,029
1935	31,741	106,343	18,774	156,858
1936	39,068	154,879	27,299	221,246
1937	53,892	183,955	34,602	272,439
1938	41,377	131,060	16,837	189,274
1939	26,973	158,585	20,127	206,685
1940	25,163	224,271	24,762	274,196
1941	32,724	280,706	28,661	342,093
1942	21,135	150,988	29,578	201,701
1943	16,570	88,678	29,453	134,701
1944	43,228	205,903	44,860	293,991
1945	46,670	197,760	44,872	289,302
1946	37,393	220,881	25,902	284,176
1947	47,495	366,288	11,630	425,413
1948	25,617	394,120	12,780	591,382
1949	26,843	412,789	12,187	575,115

Source: Depts. of Commerce and Agriculture

TRACTOR SALES AND OUTPUT

Based On Belt Horsepower Range

	1948	1949
Production:		
Under 25 HP	321,824	318,924
25 to 35 HP	105,331	130,925
35 HP and over	18,670	27,920
Domestic Sales:		
Under 25 HP	288,025	271,413
25 to 35 HP	90,951	117,505
35 HP and over	16,266	24,903

Source: Farm Implement News

DISPOSITION OF INCOME

Totals By Billions of Dollars

	Total	Personal Tax and Nontax Payments	Disposable Personal Income	
			Total	Personal Saving
1935	59.9	1.9	58.0	1.8
1936	68.4	2.3	66.1	3.6
1937	74.0	2.9	71.1	3.9
1938	68.3	2.9	65.5	1.0
1939	72.6	2.4	70.2	2.7
1940	78.3	2.6	75.7	3.7
1941	95.3	3.3	92.0	9.6
1942	122.7	6.0	116.7	25.6
1943	150.3	17.8	132.4	30.2
1944	165.9	18.9	147.0	35.4
1945	171.9	20.9	151.1	28.0
1946	176.9	18.8	158.1	10.3
1947	193.5	21.5	172.0	5.1
1948	211.9	21.1	190.8	12.0
1948				
First quarter†	205.1	23.2	181.9	6.7
Second quarter	210.3	20.7	189.6	10.8
Third quarter	215.4	20.2	195.2	15.0
Fourth quarter	216.6	20.4	196.2	15.3
1949	213.5	19.0	195.0	15.0
1949				
First quarter	213.7	18.7	195.0	17.1
Second quarter	212.9	18.7	194.2	16.0
Third quarter	208.3	18.6	189.5	9.8
Fourth quarter	205.4	18.7	186.8	6.2
1950				
First quarter	216.4	18.7	197.7	15.3
Second quarter	215.1	19.5	195.6	10.4
Third Quarter	224.8	20.0	204.7	6.4

† Seasonally adjusted quarterly totals at annual rates

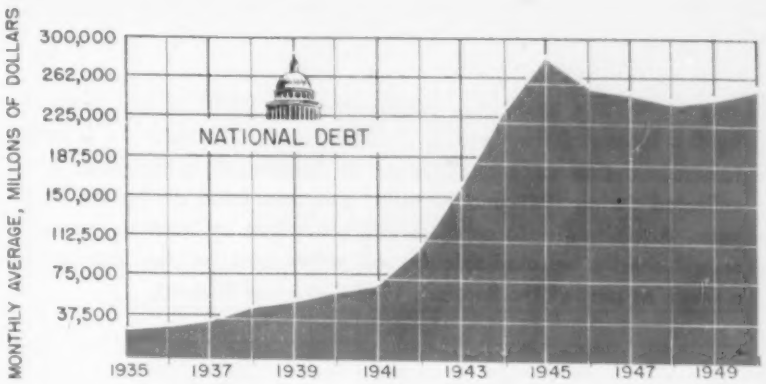
Source: U. S. Dept. of Commerce, Office of Business Economics

FARM MACHINERY WAGES

Workers' Average Earnings

	Production and Related Workers				All Employees
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)	Number (thousands)
1947	$55.76	40.7	$1.370	140.3	178.9
1948	60.59	40.5	1.496	151.7	191.3
1949	61.11	39.3	1.555	142.4	181.3
1950					
Jan.	61.58	39.1	1.575	133.2	171.0
Feb.	63.24	40.0	1.581	137.4	175.2
Mar.	62.92	39.6	1.589	139.5	177.5
Apr.	62.96	39.7	1.586	142.4	180.5
May	63.88	40.1	1.593	141.5	180.7
June	63.88	40.2	1.589	141.1	180.4
July	63.88	40.1	1.593	140.5	180.1
Aug.	64.44	40.3	1.599	140.3	180.1
Sept.	63.90	40.6	1.574	107.4	146.0

Source: Bureau of Labor Statistics

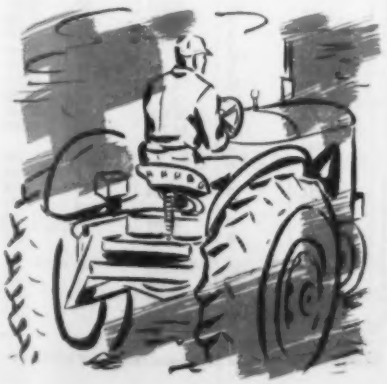


GROSS NATIONAL DEBT OUTSTANDING

Interest-Bearing, Non-Interest Bearing (Millions of Dollars)

	Direct Debt					Obligations Guaranteed by U. S. Government
	Total	Interest-Bearing			Non-Interest Bearing	
		Total	Public Issues	Special Issues		
1935 monthly average	$30,557	$29,598	$28,868	$728	$961	$4,494
1936 monthly average	34,405	33,699	33,067	632	707	4,862
1937 monthly average	37,286	36,716	34,489	2,227	571	4,645
1938 monthly average	39,439	39,911	35,755	3,156	529	4,982
1939 monthly average	41,961	41,465	37,234	4,231	496	5,704
1940 monthly average	45,039	44,471	39,102	5,370	568	5,917
1941 monthly average	58,020	57,533	50,551	6,982	487	6,324
1942 monthly average	108,170	107,308	98,276	9,032	862	4,301
1943 monthly average	165,877	164,508	151,805	12,703	1,370	4,230
1944 monthly average	230,630	228,891	212,565	16,326	1,739	1,514
1945: June	258,682	256,357	237,545	18,812	2,326	433
1945: December	278,115	275,694	255,693	20,000	2,421	567
1946: June	269,422	268,111	245,779	22,332	1,311	476
1946: December	259,148	257,649	233,064	24,585	1,500	339
1947: June	258,286	255,113	227,747	27,366	3,173	90
1947: December	256,900	254,205	225,250	28,955	2,695	81
1948: June	252,292	250,063	219,852	30,211	2,229	73
1948: December	252,800	250,579	218,865	31,714	2,220	56
1949: June	252,770	250,762	217,986	32,776	2,009	27
1949: December	257,130	255,019	221,123	33,896	2,111	29
1950: January	256,865	254,869	221,367	33,502	1,997	27
February	256,368	254,406	221,535	32,871	1,962	27
March	255,724	253,506	221,408	32,098	2,218	24
April	255,718	253,516	221,714	31,802	2,202	22
May	256,350	254,183	222,315	31,868	2,167	20
June	257,357	255,209	222,853	32,356	2,148	20
July	257,541	255,403	222,884	32,518	2,138	16
August	257,874	255,764	223,059	32,705	2,110	18
September	257,216	254,968	221,572	33,396	2,247	20

Source: U. S. Treasury Dept.



FARM WHEEL TRACTORS BY AGE, DRAWBAR HP

Geographical Distribution; Garden and Homemade Tractors Excluded

Age and Drawbar HP Distribution by Age	Northeast Pct.	Corn Belt Pct.	Lake States Pct.	Plains Pct.	Southeast Pct.	Okla.-Texas Pct.	Mountain Pct.	Pacific States Pct.	United States Pct.
Under 5 years	36	30	32	27	40	28	48	39	32
5 to 9 years	37	44	40	38	44	42	36	34	41
10 to 14 years	12	16	13	14	10	18	7	9	14
15 to 19 years	9	7	11	19	4	10	7	9	10
20 years and over	6	3	4	2	2	2	2	9	3
Distribution by Drawbar HP									
Under 12 HP	31	18	24	15	19	27	13	32	21
12.0 to 18.4 HP	41	42	43	36	45	38	40	46	42
18.5 to 24.9 HP	23	33	28	36	28	24	31	15	29
25.0 HP and over	5	7	5	13	8	11	16	7	8

Source: Farm Implement News

4 METAL FACTS SECTION

Wholesale Trade: Sales and Number of Establishments—Electrical Goods, Appliances, Hardware, Plumbing, Machinery, Supplies, Metal Work, Iron and Steel Scrap

The information below is a condensation of statistics just released by the Bureau of the Census, U. S. Dept. of Commerce. It is contained in the Bureau's 1948 Census of Business, data for which was collected during 1949 and compiled and correlated during the past year. Additional data on these and other lines of business are now or will shortly be available for all states and for the nation as a whole as part of the Bureau's 1948 Census of Business.



DISTRIBUTOR AND JOBBER SALES

Not Including Branches Owned and Operated by Producers

	Electrical Goods—General Line, Apparatus Supplies		Electric Appliances, Specialties		Hardware		Plumbing, Heating Equipment, Supplies		Industrial Machinery Equipment, Supplies		Metal and Metal Work, except Scrap		Iron and Steel Scrap	
	No. of Establishments	1948 Sales (000 omitted)	No. of Establishments	1948 Sales (000 omitted)	No. of Establishments	1948 Sales (000 omitted)	No. of Establishments	1948 Sales (000 omitted)	No. of Establishments	1948 Sales (000 omitted)	No. of Establishments	1948 Sales (000 omitted)	No. of Establishments	1948 Sales (000 omitted)
CONTINENTAL U. S.	2,925	$2,386,546	2,518	$2,038,020	2,153	$2,013,997	3,748	$1,812,860	7,304	$2,999,989	1,803	$2,056,715	3,054	$1,699,428
NEW ENGLAND	202	109,525	147	134,887	138	74,074	341	139,666	409	130,286	108	×	201	72,765
Maine	10	9,867	17	8,259	12	13,730	17	11,462	18	5,560	5	1,154	13	2,008
New Hampshire	5	5,549	4	887	6	2,723	12	5,522	5	953	1	×	16	1,070
Vermont	4	2,287	3	57	5	5,831	6	4,442	8	2,153	3	544	11	936
Massachusetts	113	55,517	69	73,547	75	36,048	176	71,388	231	81,235	62	65,826	104	36,750
Rhode Island	20	10,037	14	14,030	14	6,523	32	10,994	54	11,237	10	5,238	10	5,799
Connecticut	50	26,268	40	38,107	26	9,219	98	35,858	93	29,148	27	17,983	47	26,202
Middle Atlantic	907	580,506	667	599,658	760	326,817	1,209	539,902	1,815	637,840	703	1,053,150	696	450,991
New York	569	359,531	462	354,062	535	202,930	686	292,345	1,171	395,096	532	885,475	292	1,629,985
New Jersey	120	60,461	60	72,959	93	21,795	241	91,343	231	52,758	63	59,044	107	47,923
Pennsylvania	218	160,514	145	172,637	132	102,092	282	156,214	413	189,986	108	108,631	297	240,083
EAST NORTH CENTRAL	566	515,235	536	397,144	344	354,700	688	295,574	1,511	544,331	401	456,461	894	706,045
Ohio	164	150,627	165	106,441	83	113,104	197	78,030	419	152,474	139	123,425	259	276,802
Indiana	57	49,406	59	43,758	31	39,655	71	30,418	137	59,494	23	43,198	125	36,497
Illinois	184	176,658	181	152,207	127	78,105	198	84,001	485	186,165	139	190,450	220	230,379
Michigan	107	95,861	86	62,857	75	76,144	149	70,270	323	103,235	85	86,693	183	125,950
Wisconsin	54	42,683	45	31,881	28	47,692	73	32,855	147	42,963	15	10,695	107	36,417
WEST NORTH CENTRAL	217	249,132	207	180,057	127	×	271	×	487	202,065	95	102,748	430	144,832
Minnesota	42	56,407	36	42,782	32	111,717	62	29,562	111	38,459	17	26,662	74	30,604
Iowa	43	45,881	32	22,486	19	27,096	41	25,847	47	22,381	7	4,080	84	18,791
Missouri	75	84,312	77	72,805	49	87,234	109	66,462	176	66,001	48	64,839	111	55,950
North Dakota	6	10,280	6	2,683	1	×	1	×	6	3,701	2	×	10	1,228
South Dakota	7	9,503	10	7,113	4	4,343	9	5,282	7	1,695	1	×	15	1,282
Nebraska	22	27,833	23	18,225	7	13,087	26	16,101	29	20,186	8	1,993	49	15,587
Kansas	22	14,916	21	13,963	15	19,437	23	14,194	111	49,642	12	4,641	87	21,390
SOUTH ATLANTIC	286	273,341	280	237,859	217	224,870	366	229,152	507	238,103	104	49,061	242	107,870
Delaware	9	8,132	3	325	3	2,268	12	6,010	4	×	2	×	5	1,721
Maryland	39	31,127	36	29,650	28	15,009	65	27,618	75	22,229	24	16,866	29	28,629
District of Columbia	17	20,760	27	29,526	11	11,293	27	31,688	21	×	7	2,358	5	1,405
Virginia	36	31,942	37	38,094	32	33,199	41	36,058	62	34,964	18	8,200	41	17,288
West Virginia	20	19,789	31	17,077	33	46,841	13	5,863	75	54,036	9	2,603	29	7,406
North Carolina	49	57,015	42	34,690	26	35,309	59	38,004	92	37,556	12	4,811	46	15,113
South Carolina	20	18,821	16	7,066	22	26,381	19	11,572	26	20,565	3	1,078	12	2,911
Georgia	38	41,526	39	47,564	36	32,814	50	28,542	77	35,049	11	4,347	51	23,885
Florida	58	44,229	49	33,867	26	21,756	80	43,797	75	27,910	18	8,712	24	9,501
EAST SOUTH CENTRAL	114	106,524	114	84,671	93	223,744	103	59,465	244	112,725	30	17,045	127	80,109
Kentucky	28	19,416	21	12,944	22	77,096	31	16,973	66	24,112	4	1,417	33	14,018
Tennessee	49	60,903	49	36,341	27	70,353	32	19,873	76	40,205	14	9,631	37	32,018
Alabama	25	16,420	38	29,431	25	63,259	21	13,449	60	32,389	7	2,772	39	31,256
Mississippi	12	9,785	6	5,955	19	13,036	19	9,170	42	16,019	5	3,225	18	2,817
WEST SOUTH CENTRAL	200	194,843	191	145,881	143	201,348	294	143,710	1,054	650,416	117	×	240	89,940
Arkansas	10	7,789	22	15,515	13	18,871	22	8,748	38	15,920	8	1,549	26	4,178
Louisiana	30	46,762	30	24,588	24	48,988	47	18,061	178	118,289	15	10,149	33	17,272
Oklahoma	29	27,985	28	19,849	11	9,887	44	21,790	218	129,901	16	×	61	10,195
Texas	131	112,307	111	85,929	95	123,602	171	95,111	620	386,306	78	60,956	120	58,195
MOUNTAIN	74	63,890	92	51,624	64	×	103	×	243	119,431	32	14,755	62	6,434
Montana	13	11,405	9	5,427	14	14,452	13	4,796	21	8,480	4	2,450	3	×
Idaho	6	×	3	×	6	9,876	6	2,031	21	4,128	2	×	4	604
Wyoming	1	×	5	×	2	×	3	×	25	24,395	1	×	7	368
Colorado	19	12,534	27	21,984	17	14,677	34	15,972	67	29,215	10	4,754	29	2,940
New Mexico	3	3,074	5	580	6	4,121	11	3,709	42	23,107			4	518
Arizona	16	12,632	15	4,470	9	10,077	12	4,996	22	10,322	6	5,044	7	382
Utah	15	14,920	24	16,721	7	21,674	21	11,184	34	17,708	9	2,084	6	1,086
Nevada	1	×	4	×	3	×	3	×	11	2,076			2	×
PACIFIC	359	293,550	284	266,239	267	266,790	383	202,741	1,034	364,792	213	187,399	162	40,542
Washington	61	56,652	48	30,858	53	55,798	50	26,277	150	45,039	31	23,484	26	8,021
Oregon	33	40,782	29	25,980	33	36,024	34	21,896	138	54,336	20	11,444	9	1,388
California	265	196,116	207	149,401	181	174,968	299	154,768	746	265,417	162	152,471	127	31,133

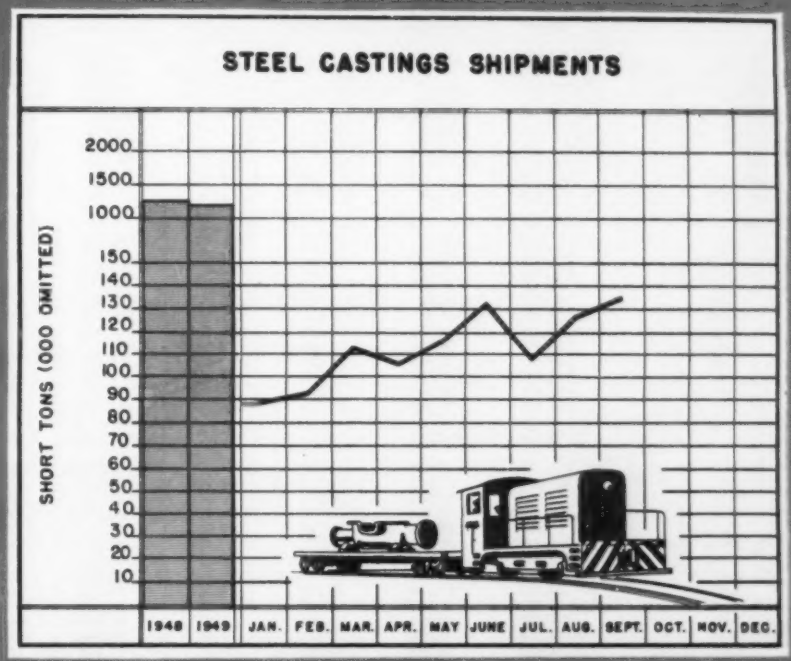
× = Suppressed to avoid disclosure.

Source: U. S. Dept. of Commerce, Bureau of the Census

THE IRON AGE 5 SECTION

METAL INDUSTRY FACTS

Casting, Forging, Powder Metallurgy



IN THIS SECTION:

Page

AIR POLLUTION CONTROL . . 344

ALUMINUM CASTINGS . . . 341

CASTINGS
- Copper . . . 341
- Gray iron . . . 338, 339
- Malleable . . . 339
- Radiation . . . 340
- Steel . . . 338, 339

COPPER
- Castings . . . 341
- Powder . . . 342

DIECASTINGS, LEAD . . . 341

EMPLOYMENT
Hours, earnings, rates
- Forgings . . . 340
- Gray iron, semi-steel foundries 338
- Iron and steel foundries . . . 338
- Malleable castings . . . 338
- Nonferrous foundries . . . 341
- Steel castings . . . 338

FOUNDRIES
- Eqpt. orders, shipments . . . 340
- Foundries in U. S. . . . 343

FORGINGS . . . 340

IMPORTS, IRON POWDER . . 342

INDUSTRIAL FURNACES . . . 341

IRON
- Castings . . . 338, 339
- Powder . . . 342

JET ENGINE ALLOYS . . . 340

LEAD
- Diecastings . . . 341
- Powder . . . 342

MAGNESIUM CASTINGS . . 341

ORDERS
- Foundry equipment . . . 340
- Magnesium castings . . . 341
- Malleable castings . . . 339
- Steel castings . . . 338

POWDERED METALS . . . 342

PRICES
- Copper powder . . . 342
- Iron powder . . . 342
- Zinc powder . . . 342

PROCESSING PLANTS, NO. OF IN U. S. . . . 342, 343

PRODUCTION
- Steel castings . . . 338

RADIATION CASTINGS . . . 340

SALES
- Industrial furnaces . . . 341
- Steel castings . . . 341

SHIPMENTS
- Aluminum castings . . . 341
- Copper castings . . . 341
- Copper powder . . . 342
- Diecastings, lead . . . 341
- Forgings, steel . . . 340
- Foundry equipment . . . 340
- Gray iron castings . . . 338, 339
- Iron powder . . . 342
- Lead powder . . . 342
- Radiation castings . . . 340
- Steel castings . . . 339
- Zinc castings . . . 341

STEEL CASTINGS . . . 338, 339

ZINC
- Castings . . . 341
- Powder . . . 342

5 METAL FACTS SECTION

Steel Castings Production; Iron and Steel Foundry Employment; Earnings, Gray Iron and Semisteel Foundries; Earnings, Steel Casting Industry.

STEEL CASTINGS, PRODUCTION, SALES, ORDERS BY TYPE

Total Production and Sales Broken Into Railway Specialties and Miscellaneous Castings Over 20-Year Period.

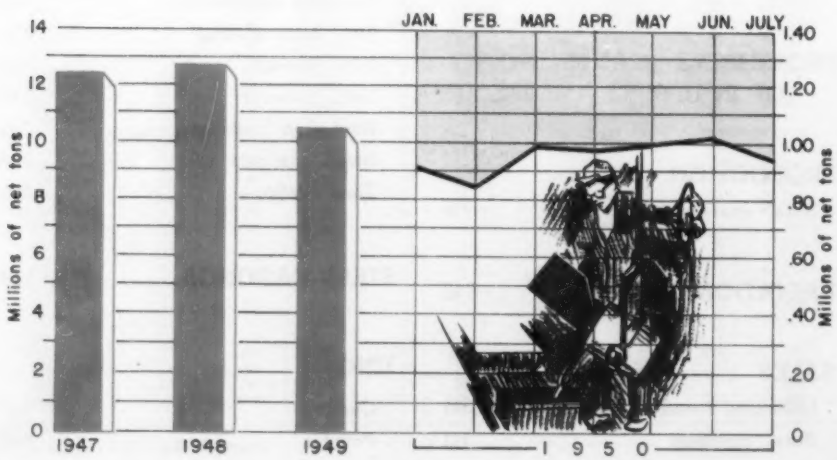
Year	Production, Net Tons			Orders Booked, Less Cancellations, Net Tons		
	Total	Railway Specialties	Miscellaneous	Total	Railway Specialties	Miscellaneous
1930	991,872	368,690	623,182	884,433	333,199	551,234
1935	398,988	94,329	304,659	400,157	97,357	302,800
1940	797,947	290,255	507,692	816,919	266,418	550,501
1941	1,316,027	471,810	844,217	1,561,864	560,286	1,001,578
1942	1,679,178	309,352	1,369,826	2,187,347	219,145	1,968,202
1943	1,928,645	248,664	1,679,981	2,333,420	352,760	1,980,660
1944	1,843,386	338,007	1,505,379	1,914,294	322,630	1,591,664
1945	1,484,957[1]	311,833[1]	1,173,124[1]	1,529,912	352,382	1,177,530
1946	1,043,358[1]	286,131[1]	757,227[1]	1,069,842	283,511	786,331
1947	1,203,504[1]	341,987[1]	861,517[1]	1,330,081	449,432	880,649
1948	1,760,894[2]	442,258[2]	839,143[2]	5,514,224[3]	2,308,066[3]	3,206,158[3]
Jan.	141,068	35,129	73,153	491,745	209,398	282,347
Feb.	142,434	34,800	72,962	497,097	214,113	282,984
March	162,891	41,876	83,674	508,822	216,820	292,002
April	150,305	36,079	78,817	472,370	185,691	286,679
May	143,337	39,275	72,341	482,531	204,619	277,912
June	152,894	41,567	78,207	469,973	202,438	267,535
July	120,445	28,422	59,505	497,410	214,602	282,808
Aug.	140,223	35,056	72,482	472,481	201,347	271,134
Sept.	149,222	36,457	76,094	447,972	189,267	258,705
Oct.	153,845	38,833	76,092	424,352	169,707	254,645
Nov.	146,835	36,014	74,261	395,013	156,305	238,708
Dec.	157,395	38,730	77,556	354,458	143,759	210,699
	1,760,894	442,258	839,143	5,514,224	2,308,066	3,206,158
1949	1,243,502[2]	232,976[2]	623,321[2]	2,351,354[3]	809,888[3]	1,541,466[3]
Jan.	140,577	31,891	71,612	338,889	139,967	198,922
Feb.	135,042	32,545	66,880	320,202	130,460	189,742
Mar.	138,889	30,313	71,714	284,754	109,945	174,809
Apr.	119,953	23,834	59,443	250,506	99,240	151,266
May	106,178	22,165	53,372	191,473	85,851	105,622
June	116,052	26,940	57,172	173,237	58,215	115,022
July	78,710	14,625	35,499	155,494	48,236	107,258
Aug.	89,964	13,348	46,064	143,566	39,448	104,118
Sept.	86,502	11,823	44,030	127,664	28,526	99,138
Oct.	70,690	8,964	39,299	124,817	25,896	98,921
Nov.	76,437	7,270	43,415	117,865	23,114	94,751
Dec.	84,508	9,258	43,821	122,887	20,990	101,897
	1,243,502	232,976	623,321	2,351,354	809,888	1,541,466
1950						
Jan.	88,821	9,298	48,698	142,484	32,736	109,748
Feb.	91,827	10,920	51,125	165,186	51,208	113,978
Mar.	111,772	15,821	62,307	185,611	63,572	122,039
Apr.	106,964	17,406	57,727	201,643	71,080	130,563
May	117,944	20,552	63,293	198,078	65,669	132,409
June	131,097	27,065	67,572	206,799	71,806	134,993
July	98,269	15,734	53,140	255,418	94,835	160,583
Aug.	128,369	24,922	69,491	329,944	130,378	199,566
Sept.	134,574	96,738	71,443	427,969	203,899	224,070

[1] Shipments beginning with last quarter of 1945.
[2] Difference between total and classified use is the tonnage for own use and not for sale.
[3] Unfilled orders or backlog.

Note: Approximate coverage of industry is as follows: 1920-30, 80 pct; 1935, 90 pct; 1940-44, 96 pct; 1945-46, 100 pct; 1947, preliminary estimates of complete coverage, based on a sample of the foundries.

Source: Bureau of Census

GRAY IRON SHIPMENTS



IRON AND STEEL FOUNDRIES

Employment and Average Earnings

	All Employees	Production and Related Workers			
	Number (thousands)	Number (thousands)	Average Weekly Earrings	Average Weekly Hours	Average Hourly Earnings
1947	256.8	229.4	$54.80	41.2	$1.330
1948	259.3	230.9	58.45	40.7	1.436
1949	217.0	188.9	55.09	37.2	1.481
1950:					
Jan.	198.3	172.0	58.17	38.7	1.503
Feb.	203.6	177.1	59.11	39.2	1.508
Mar.	208.6	182.1	60.33	39.9	1.512
Apr.	215.7	188.1	62.37	40.9	1.525
May	220.3	193.0	63.38	41.4	1.531
June	227.9	200.1	64.88	42.1	1.541
July	229.7	202.1	64.37	41.8	1.540

Source: Bureau of Labor Statistics

GRAY IRON, SEMISTEEL FOUNDRIES

Average Hours and Earnings of Workers

	Avg. Weekly Earnings, $	Avg. Weekly Hours	Avg. Hourly Earnings, $
1939	25.93	37.1	0.699
1943	47.39	47.3	1.003
1944	51.34	47.7	1.077
1945	50.88	46.2	1.101
1946	50.70	42.5	1.194
1947*	55.24	42.3	1.306
1948*	57.46	40.9	1.405
1949	54.38	37.5	1.450
1950: Jan.	57.74	39.2	1.473
Feb.	58.91	39.7	1.484
Mar.	59.81	40.3	1.484
Apr.	62.03	41.3	1.502
May	63.44	41.9	1.514
June	64.19	42.4	1.514
July	63.78	41.2	1.548

* All data for 1947, '48 and '49 calculated on revised BLS basis.

Source: Bureau of Labor Statistics

MALLEABLE CASTINGS, LABOR

Average Earnings and Hours for Industry

	Avg. Weekly Earnings, $	Avg. Weekly Hours	Avg. Hourly Earnings, $
1939	24.16	36.0	0.671
1940	25.43	37.5	0.678
1941	31.57	41.7	0.757
1942	37.15	42.5	0.874
1943	46.14	46.5	0.994
1944	50.98	47.9	1.064
1945	49.83	45.4	1.099
1946	49.51	40.9	1.211
1947*	54.39	40.2	1.353
1948*	59.19	40.4	1.465
1949	54.30	35.7	1.521
1950: Jan.	59.25	38.3	1.547
Feb.	59.25	38.6	1.535
Mar.	61.70	39.6	1.558
Apr.	63.25	40.6	1.558
May	63.32	40.8	1.552
June	65.75	41.8	1.573
July	64.80	41.3	1.569

* All data for 1947, '48 and '49 calculated on revised BLS basis.

Source: Bureau of Labor Statistics

STEEL CASTINGS EARNINGS

Average Hours and Earnings of Workers

	Avg. Weekly Earnings, $	Avg. Weekly Hours	Avg. Hourly Earnings, $
1939	27.97	36.9	0.759
1940	29.66	38.6	0.768
1941	37.00	43.7	0.844
1942	43.77	45.8	0.955
1943	48.79	46.4	1.052
1944	51.59	46.2	1.116
1945	49.98	43.9	1.138
1946	48.45	38.8	1.248
1947*	53.94	39.6	1.362
1948*	59.93	40.8	1.476
1949	56.73	37.3	1.521
1950: Jan.	57.75	37.6	1.536
Feb.	59.83	38.7	1.546
Mar.	60.61	39.1	1.550
Apr.	62.79	40.3	1.558
May	63.49	40.7	1.560
June	65.84	41.7	1.579
July	65.31	41.6	1.570

* All data for 1947, '48 and '49 calculated on revised BLS basis.

Source: Bureau of Labor Statistics

SHIPMENTS OF STEEL CASTINGS, ALLOY AND CARBON

By Types of Furnace and Grade of Steel, Net Tons

Type of Furnace and Grade of Steel	1946	1947	1948	1949	1950 January	February	March	April	May	June	July	August	September
Total	1,432,049	1,625,055	1,760,032	1,243,502	88,821	91,827	111,772	106,964	117,944	131,097	98,269	128,369	134,574
Electric	691,098	744,328	758,383	571,324	46,546	49,074	56,673	54,699	58,913	65,094	47,561	67,439	66,362
Carbon	489,466	487,486	511,183	386,803	31,636	33,696	39,102	37,407	41,261	40,695	28,007	40,447	41,793
Alloy (including stainless)	201,632	256,842	247,200	184,521	14,910	15,378	17,571	17,292	17,652	24,399	19,554	26,992	24,569
All Other	740,951	880,727	1,001,649	672,178	42,275	42,753	55,099	52,265	59,031	66,003	50,708	60,930	68,212
Carbon	622,777	753,519	856,525	557,429	32,980	33,147	43,356	42,505	46,941	55,670	42,115	51,750	56,730
Alloy (including stainless)	118,174	127,208	145,124	114,749	9,295	9,606	11,743	9,760	12,090	10,333	8,593	9,180	11,482

Source: Bureau of Census

SHIPMENTS OF GRAY IRON CASTINGS INCLUDING PIPE

Iron Castings Plus Soil and Pressure Pipe, Net Tons

	1947	1948	1949	1950 January	February	March	April	May	June	July	August	September
Total Gray Iron Castings, Shipments	12,540,960	12,785,909	10,549,284	913,321	864,189	995,782	981,126	1,095,111	1,138,129	961,450	1,201,569	1,159,240
For Sale	7,181,299	7,131,405	5,517,527	449,577	416,594	500,195	483,862	572,867	613,084	507,867	677,134	648,966
For Own Use	5,359,661	5,654,504	5,031,757	463,744	417,595	495,587	497,264	522,224	523,045	453,583	524,435	510,274
Unfilled Orders for Sale	33,512,992	31,179,282	.....	914,185	873,455	921,575	922,255	977,833	1,039,619	1,286,579	1,670,380	1,794,118
Molds for Heavy Steel Ingots, Shipments	1,873,376	1,979,740	1,776,242	188,152	169,605	170,082	182,420	195,021	197,474	177,154	199,770	203,191
Chilled Iron R. R. Car Wheels, Shipments	752,976	719,784	555,569	34,254	33,417	44,898	42,768	46,219	45,672	35,066	52,508	44,707
Cast Iron Pressure Pipe and Fittings, Shipments	1,031,628	1,149,553	1,029,743	64,095	63,363	89,264	82,774	104,529	106,980	94,438	131,127	121,556
Cast Iron Soil Pipe and Fittings, Shipments	577,189	639,989	563,310	53,077	46,744	56,135	51,796	64,710	72,192	58,874	71,118	67,118
Misc. Gray Iron Castings, Shipments	8,305,793	8,296,843	6,824,420	573,743	551,060	635,403	621,368	684,632	713,811	595,918	747,046	722,667

Source: Bureau of Census

HEAT TREATING

"THE IRON AGE Mid-Century Reference of Heat Treating" begins on p. 267. For anyone in any way interested in heat treating it should prove invaluable. It is the most complete up-to-date index on time-temperature-transformation ever assembled. Both ferrous and nonferrous metals are covered in a guide which indexes and lists the most important papers and publications on this subject. Austenite transformations are affected by chemistry, grain size, segregation, cleanliness, etc., as well as by time and temperature. Many different references on these and on isothermal heat treating practices are covered with a modern reference index which also includes important foreign work in the field.

MALLEABLE IRON CASTINGS SHIPMENTS. ORDERS

Production, Shipments and New Orders, Net Tons

	Production, Net Tons	Shipments, Net Tons: Total	For Sale	For Own Use	New Orders, Less Cancellations, Net Tons: Total	For Sale	For Own Use	Shipments, Monthly Index*
1930	471,923	475,371	.....	.....	432,722	.....	.....	.....
1935	466,395	455,208	.....	.....	452,611	.....	.....	96.1
1938	289,914	296,003	208,597	87,406	289,384	203,172	86,212	62.5
1939	480,578	466,068	331,421	134,647	489,482	354,249	135,233	98.4
1940	565,923	556,209	400,818	155,391	571,929	414,310	157,619	117.4
1941	843,038	832,173	619,365	212,808	884,881	663,688	221,193	175.7
1942	768,496	746,008	590,804	155,204	859,102	703,167	155,935	157.5
1943	849,764	844,639	653,884	190,755	1,054,224	826,422	227,802	178.3
1944	889,820	878,233	619,588	258,645	969,483	685,511	283,972	185.4
1945	.....	790,731	520,887	269,844	766,711	426,159	340,552	166.9
1946	.....	752,028	452,355	299,673	.....	483,368	.....	158.8
1947	.....	895,054	513,228	381,826	.....	447,975	.....	188.9
1948	.....	933,265	525,212	408,053	.....	460,189	.....	197.0
1949	.....	713,330	371,214	34,416	430,530	226,483	204,047	155.8
1950: Jan.	.....	62,874	32,918	29,956	.....	34,390	.....	159.3
Feb.	.....	60,386	31,249	29,137	.....	35,991	.....	153.0
Mar.	.....	66,259	38,639	27,620	.....	41,456	.....	167.8
April	.....	69,822	36,279	33,543	.....	42,663	.....	176.9
May	.....	76,161	42,432	33,729	.....	43,258	.....	192.9
June	.....	82,345	46,613	35,732	.....	56,322	.....	208.8
July	.....	67,514	37,198	30,316	.....	55,715	.....	171.0
Aug.	.....	86,021	50,019	36,002	.....	77,093	.....	211.9
Sept.	.....	82,479	46,927	35,552	.....	67,136	.....	208.9

Source: Bureau of Census

Note: Statistics represent coverage of approximately 90 pct for 1923-43; thereafter coverage is essentially complete

* Based on average monthly shipments for 5-year period 1935-39 (39,476 short tons).

5 METAL FACTS SECTION

Jet Engine Analysis; Cast Iron Radiation Shipments; Average Earnings In Forging Industry; Shipments of Forgings and Foundry Equipment Orders

HIGH-TEMPERATURE JET-ENGINE ALLOYS

Popular Grades Listed in Order of Their Decreasing Strategic Alloy Index, October

	C	Cr	Ni	Co	Mo	W	Cb	Ti	Fe	Other
S-816	0.4	20	20	44	4	4	4	...	3	
MIT NT-2	1	20	30	20	3	2.2	...	...	21	Ta-2
S-590	0.4	20	20	20	4	4	4	...	25	
61	0.4	28	1	67		5	...	...	...	
NR 88 (Co-Cr(9W))	0.4	23	3	63		9	...	...	...	
Vitallium	0.25	28	2.5	62	5.5	...	...	...	1	
X-40	0.5	25	10	55		7	...	...	0.6	
422-19	0.4	26	15	51	6	...	...	...	...	
NR-90 (Co-Cr-Ni(5Mo.5W))	0.4	23	13	46	5	5	...	...	...	
L-1360	0.10	10	70	...	5	...	2	...	4.5	Al-6 Be-0.5
N-155	0.3	20	20	20	3	2	1.0	...	0.32	N_2-0.11
6059	0.4	26	33	33	5	...	...	...	...	
Inconel X	0.05	15	73	...	...	...	1	2.5	7	
K-42-B	0.05	18	42	22	...	...	...	2.2	14	Al-0.2
EME	0.1	19	12	...	...	3.2	1.2	...	63	N-0.15
Refractalloy 26	0.05	18	37	20	3	...	...	2.8	18	Al-0.2
Nimonic 80	0.05	21	75	...	...	...	...	2.5	0.7	Al-0.6
19-9-DL	0.3	19	9	...	1.2	1.2	0.3	0.3	67	
Inconel	0.05	14	78	...	...	...	...	...	7	Cu-0.2
Hastalloy B	0.1	...	64	...	28	...	...	...	6	
Timken (16-25-6)	0.12	16	25	...	6	...	...	...	...	N_2-0.18
17W	0.5	13	19	...	1	2.5	...	...	60	

CAST IRON RADIATION SHIPMENTS

By Type and Dollar Value

	Cast Iron Boilers 1000 lb	Value ($1000)	Cast Iron Radiators and Convectors 1000 sq ft	Value ($1000)
1948	263,303	.....	60,333	.....
1949	206,296	.....	35,888	.....
1950				
Jan.	10,595	$2,235	2,679	31,429
Feb.	10,534	2,147	2,966	1,547
Mar.	11,144	2,273	3,015	1,671
Apr.	12,873	2,578	2,440	1,313
May	15,349	3,081	2,025	1,073
June	31,994	6,702	3,513	1,902
July	25,747	5,124	4,020	2,266
Aug.	40,329	8,175	6,449	3,506
Sept.	40,153	8,218	5,714	3,121

Source: Bureau of Census and Dept. of Commerce

SHIPMENTS OF COMMERCIAL STEEL FORGINGS

Alloy and Carbon in Drop and Upset and Press and Open Hammer Types—Net Tons

Date	Total	Drop and Upset		Press and Open Hammer	
		Carbon Steel	Alloy Steel	Carbon Steel	Alloy Steel
1946	1,184,041	564,491	228,743	224,962	165,845
1947	1,333,731	692,544	279,538	224,738	136,911
1948	1,413,266	693,874	344,928	227,662	146,802
1949	1,138,628	585,474	280,970	162,852	109,332
1950: January	92,994	49,192	24,266	10,053	9,483
February	92,547	50,880	22,560	10,224	8,883
March	108,677	60,781	26,964	11,508	9,424
April	99,193	55,661	25,289	9,756	8,487
May	113,657	64,334	29,125	9,719	10,479
June	117,333	67,747	28,314	10,804	10,468
July	94,929	55,596	23,485	7,047	8,801
August	123,608	67,670	31,935	12,301	11,702
September	122,408	64,456	33,297	13,652	11,003

Source: Bureau of Census

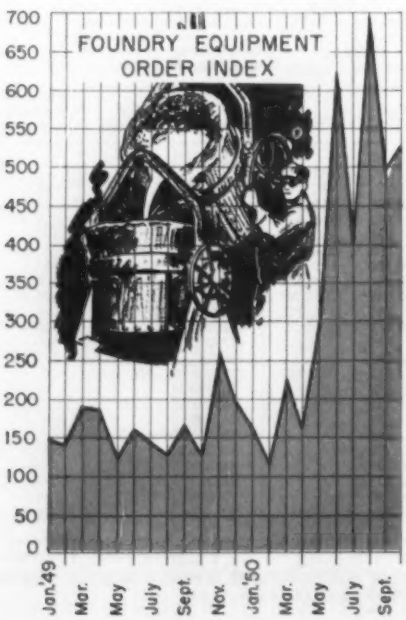
EARNINGS IN FORGING INDUSTRY

Average Earnings Per Worker

	Avg. Weekly Earnings, $	Avg. Weekly Hours	Avg. Hourly Earnings, $
1935	23.62	38.5	0.615
1936	26.11	41.7	0.627
1937	28.84	40.9	0.711
1938	23.97	32.3	0.744
1939	29.45	38.4	0.767
1940	32.56	41.2	0.791
1941	40.93	45.9	0.894
1942	49.93	47.9	1.047
1943	56.88	48.2	1.180
1944	59.62	47.7	1.251
1945	56.79	45.0	1.262
1946	52.77	39.9	1.324
1947*	59.79	40.7	1.469
1948*	65.16	40.8	1.597
1949	63.18	38.2	1.654
1950: Jan.	64.89	38.6	1.681
Feb.	66.94	39.4	1.699
Mar.	68.75	39.9	1.723
Apr.	68.80	40.0	1.720
May	72.89	41.7	1.748
June	72.51	41.6	1.743
July	73.08	41.5	1.761

* All data for 1947, '48 and '49 calculated on revised BLS basis.

Source: Bureau of Labor Statistics



FOUNDRY EQUIPMENT ORDERS AND SHIPMENTS

Index and Dollar Volume for New Orders and Repairs

	New Orders Closed New Equipment,		Shipments		
	$	Index	New Equipment, $	Repairs $	Total $
1949: January	693,747	149.9	1,213,737	816,018	1,029,755
February	668,095	144.4	1,387,142	823,916	2,211,058
March	882,645	190.8	955,240	767,386	1,722,626
April	797,085	172.0	999,808	716,807	1,715,615
May	564,814	121.9	950,194	576,681	1,526,875
June	763,920	164.9	1,136,552	578,198	1,714,850
July	679,432	146.6	1,077,376	419,083	1,446,381
August	588,975	127.1	1,057,651	509,963	1,567,614
September	771,864	166.6	770,285	574,653	1,344,938
October	618,489	133.5	979,891	567,492	1,547,383
November	1,250,059	270.4	814,423	534,669	1,349,092
December	929,343	201.0	782,906	514,488	1,297,394
1950: January	730,769	159.3	735,171	508,831	1,244,002
February	519,111	113.1	583,793	523,501	1,107,294
March	1,033,585	225.2	906,870	671,463	1,578,333
April	737,119	160.6	613,158	577,569	1,190,725
May	1,353,264	294.9	789,996	668,547	1,458,543
June	2,857,514	622.7	943,249	739,158	1,682,407
July	1,843,821	401.8	841,733	773,522	1,615,255
August	3,182,714	693.6	782,165	751,158	1,533,323
September	2,220,140	483.8	839,508	725,939	1,565,447

Source: Foundry Equipment Manufacturers Assn.

Shipments: Zinc, Aluminum, Lead, Copper and Magnesium Castings; Employment in Nonferrous Foundries; Sales of industrial Furnaces.

METAL FACTS SECTION 5

ALUMINUM CASTINGS, SHIPMENTS

By Type of Castings, 000 omitted

	Shipments				
	Total	Sand	Perm. Mold	Die	Unfilled Orders*
1947 Total	441,996	155,112	174,615	110,539	.....
1948 Total	424,490	139,781	181,334	118,738	.....
1949					
Jan.	29,142	9,702	10,386	8,490	55,580
Feb.	27,228	9,288	9,339	7,795	52,916
Mar.	27,478	9,348	9,386	7,999	50,508
Apr.	23,801	8,041	8,353	6,878	45,638
May	21,392	7,582	7,293	5,994	41,460
June	23,281	8,668	7,790	6,257	38,159
July	18,821	6,311	6,592	5,180	36,993
Aug.	23,997	9,048	8,328	6,119	38,130
Sept.	27,559	9,936	9,491	7,623	38,183
Oct.	30,499	10,162	9,923	8,908	37,881
Nov.	26,317	9,212	8,315	8,348	38,846
Dec.	26,762	10,070	7,714	8,430	36,921
Total	304,616	106,825	102,906	88,019	.....
1950					
Jan.	28,801	9,646	9,400	9,052	40,591
Feb.	28,887	10,171	9,358	8,851	44,235
Mar.	35,845	13,035	11,094	10,870	47,350
Apr.	33,384	11,091	10,656	10,823	50,024
May	36,031	11,526	11,928	11,799	52,880
June	37,600	12,677	11,825	12,173	53,309
July	32,794	10,393	11,276	10,337	70,940
Aug.	39,852	14,117	12,682	12,207	82,564
Sept.	42,061	14,369	13,085	13,594	89,723

* For sale only.

Source: Bureau of Census

A listing of important trade associations and technical societies in the fields covered by this section begins on p. 150. . . . For a calendar of meetings in the metalworking field scheduled for 1951 see p. 114. . . . Don't miss "How to Sell to Uncle Sam," a brief report on armed forces procurement, which begins on p. 269. . . . For major metal items bought by the government and where they are bought refer to p. 371.

PRESSED METAL EARNINGS

Average Hours and Earnings per Worker

	Production and Related Workers		
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	$53.71	40.6	$1.323
1948	58.39	40.3	1.449
1949	60.30	39.7	1.519
1950: Jan.	63.37	40.7	1.557
Feb.	62.35	40.7	1.532
Mar.	62.59	40.8	1.534
Apr.	62.92	41.1	1.531
May	63.47	41.0	1.548
June	66.22	42.1	1.573
July	65.46	41.3	1.585

Source: Bureau of Labor Statistics

NONFERROUS FOUNDRIES, LABOR

Employment, Hours and Earnings

	All Employees	Production and Related Workers			
	Number (thousands)	Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	85.9	74.4	$54.92	40.0	$1.373
1948	85.2	73.2	59.96	40.0	1.499
1949	75.8	63.3	60.92	39.0	1.562
1950:					
Jan.	79.0	66.0	62.73	39.6	1.584
Feb.	80.8	67.8	62.29	39.5	1.577
Mar.	83.3	69.6	63.04	40.1	1.572
Apr.	84.3	70.7	64.03	40.5	1.581
May	87.4	73.6	65.36	40.9	1.598
June	91.8	77.7	66.64	41.6	1.602
July	92.1	78.0	64.27	40.5	1.587

Source: Bureau of Labor Statistics

COPPER CASTINGS SHIPMENTS

Copper and Copper-Base, 000 omitted

	Sand	Permanent Mold	Die	All Other	Total, All Types
1947	960,732	51,139	12,657	.....	1,051,742
1948	930,790	59,009	12,672	.....	1,030,825
1949	654,444	37,311	10,082	23,481	725,318
1950: Jan.	59,878	3,440	1,173	2,093	65,585
Feb.	60,257	3,826	1,100	2,046	67,029
Mar.	71,878	4,693	1,319	2,554	80,442
Apr.	64,773	3,848	1,126	2,731	72,478
May	71,605	3,751	1,078	2,676	79,108
June	74,990	3,836	1,165	2,972	83,023
July	62,414	3,789	941	1,889	69,033
Aug.	85,948	4,258	1,159	2,648	94,013
Sept.	87,111	4,630	1,081	2,819	95,641

Source: Bureau of Census

ZINC CASTINGS SHIPMENTS

Zinc and Zinc-Base Alloys (1000 lb)

	Diecastings	All Other	Total
1947	429,535	6,873	436,408
1948	439,183	5,771	444,954
1949	.....	.....	374,865
1950: Jan.	36,908	269	37,177
Feb.	32,988	409	33,397
Mar.	42,656	438	43,094
Apr.	40,131	310	40,441
May	47,029	425	47,454
June	48,289	529	48,818
July	41,924	264	42188.
Aug.	46,589	623	47,212
Sept.	48,712	367	49,079

Source: Bureau of Census

INDUSTRIAL FURNACE SALES

Fuel Fired and Electric Types

Year	Fuel-Fired Industrial Furnaces, Including Hot Rolling Steel	Electric Resistance Furnaces	Total
1940	$14,404,397	$ 8,238,613	$ 22,643,010
1941	$34,124,751	$13,719,111	$ 47,843,862
1942	$89,709,507	$39,052,122	$128,761,629
1943	$16,951,800	$12,655,326	$ 29,807,126
1944	$20,770,634	$10,233,549	$ 31,004,183
1945	$22,102,225	$ 9,464,210	$ 31,566,435
1946	$20,383,884	$ 8,429,840	$ 28,813,724
1947	$22,569,770	$ 7,799,584	$ 30,369,354
1948	$15,655,654	$ 5,836,410	$ 21,492,064
1949	$ 9,982,440	$ 5,284,021	$ 15,266,461
1950 (9 Mos.)	$17,708,664	$ 8,616,188	$ 26,324,852

These figures constitute approximately 98% of the industry. Source: Industrial Furnace Mfrs. Assn.

LEAD DIECASTINGS SHIPMENTS

Lead and Lead-Base (1000 lb)

	Total Shipments
1947	14,137
1948	14,877
1949	9,101
1950:	
Jan.	659
Feb.	685
Mar.	847
Apr.	930
May	982
June	1,094
July	1,045
Aug.	1,629
Sept.	1,479

Source: Bureau of Census



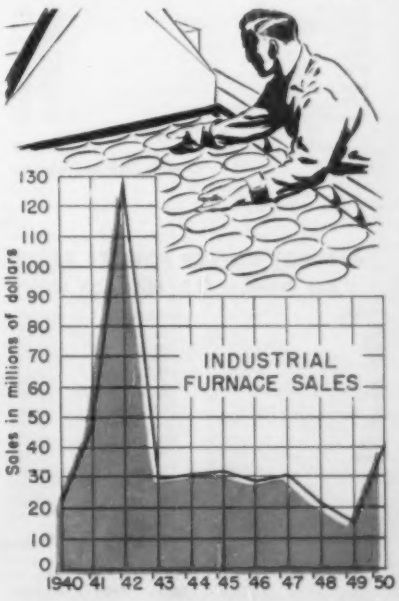
MAGNESIUM CASTINGS, ORDERS

Shipments, 000 omitted

	Shipments		Unfilled Orders*
	Total	For Sale	
1947 Total	7,693	7,050	.....
1948 Total	8,214	7,488	.....
1949 Total	9,364	8,781	.....
1950			
Jan.	814	762	2,237
Feb.	735	678	2,218
Mar.	903	849	2,322
Apr.	799	751	2,305
May	810	762	2,282
June	758	698	2,482
July	763	713	3,587
Aug.	1,147	1,078	4,855
Sept.	1,231	1,154	4,952

* For sale only.

Source: Bureau of Census



5 METAL FACTS SECTION

Prices: Copper, Lead, Zinc and Iron Powders; Shipments of Copper and Lead Powder; Imports of Iron Powders; Powder Part and Stamping Plants.

IRON POWDER, AVERAGE MONTHLY PRICES

Cents per pound, F.O.B. Mill Unless Otherwise Specified

1950	Swedish Sponge, c.i.f. N. Y., Ocean Bags, −100 Mesh	Domestic Sponge, 98+ Pct Fe, Carload Lots, −100 Mesh	Electrolytic, Annealed, 99.5+ Pct Fe, −100 Mesh	Electrolytic, Unannealed, −325 Mesh 99+ Pct Fe	Hydrogen Reduced, −300 Mesh 98+ Pct Fe	Carbonyl, 5-10 Microns, 98=99.8+ Pct Fe
Jan.	7.4 to 9.0	9.0 to 15.0	31.5 to 39.5	48.5	63.0 to 80.0	90.0 to $1.75
Feb.	7.4 to 9.0	9.0 to 15.0	31.5 to 39.5	48.5	63.0 to 80.0	90.0 to 1.75
March	7.4 to 9.0	9.0 to 15.0	31.5 to 39.5	48.5	63.0 to 80.0	90.0 to 1.75
April	7.4 to 9.0	9.0 to 15.0	31.5 to 39.5	48.5	63.0 to 80.0	70.0 to 1.75
May	7.4 to 9.0	9.0 to 15.0	31.5 to 39.5	48.5	63.0 to 80.0	70.0 to 1.35
June	7.4 to 9.0	9.0 to 15.0	31.5 to 39.5	48.5	63.0 to 80.0	70.0 to 1.35
July	7.4 to 9.0	9.0 to 15.0	36.0 to 39.5	48.5	63.0 to 80.0	70.0 to 1.35
Aug.	7.4 to 9.0	9.0 to 15.0	36.0 to 39.5	48.5	63.0 to 80.0	70.0 to 1.35
Sept.	7.4 to 9.0	9.0 to 15.0	36.0 to 39.5	48.5	63.0 to 80.0	70.0 to 1.35
Oct.	7.4 to 9.0	9.0 to 15.0	36.0 to 39.5	48.5	63.0 to 80.0	70.0 to 1.35
Nov.	7.4 to 9.0	9.0 to 15.0	36.0 to 39.5	48.5	63.0 to 80.0	70.0 to 1.35
Dec.	7.4 to 9.0	9.0 to 15.0	36.0 to 39.5	48.5	63.0 to 80.0	70.0 to 1.35
1950 Aver.	7.4 to 9.0	9.0 to 15.0	36.0 to 39.5	48.5	63.0 to 80.0	70.0 to 1.35
1949 Aver.	7.8 to 9.0	9.0 to 15.0	31.0 to 39.5	48.5	63.0 to 80.0	90.0 to 1.75



IMPORTS OF IRON POWDERS

Swedish Imports in Pounds per Month

1948	Total Weight, Lb
January	350,000
February	424,000
March	390,800
April	332,000
May	389,400
June	796,900
July	482,763
August	87,272
September	.....
October	457,000
November	1,189,659
December	280,000
1948 Total	5,179,794
1949	
January	645,355
February	513,878
March	345,213
April	500,533
May	324,419
June	491,781
July	620,396
August	280,740
September	417,300
October	567,270
November	710,000
December	800,000
1949 Total	6,216,883
1950	
January	600,000
February	600,000
March	1,150,000
April	1,700,000
May	900,000
June	750,000
July	1,100,000
August	1,300,000
Estimated Total 1950	12,000,000

Source: Dept. of Commerce

AVERAGE COPPER POWDER PRICE

¢ per Pound, F.O.B. Mill—100 Mesh

1950	Electrolytic	Reduced
Jan.	28.625	28.50
Feb.	28.625	28.50
March	28.625	28.50
April	27.75	27.00
May	27.75	27.00
June	27.75	27.00
July	9.25*	9.75*
Aug.	9.25*	9.75*
Sept.	9.25*	9.75*
Oct.	10.25*	10.00*
Nov.	10.25*	10.00*
Dec.	10.25*	10.00*
1950 Average	9.75*	9.87*
1949 Average	29.82	30.06

* Change in method, above price, *plus metal value.*

Source: THE IRON AGE

SHIPMENTS OF LEAD POWDER

Net Tons

	Total	Bearings	Friction Materials	Protective Coatings	Miscl.
1943	731	...	...	...	...
1944	1441	...	...	...	...
1945	5195*	...	...	...	...
1946	905*	55	195	193	482
1947	785*	53	165	187	380
1948	1040*	74	319	141	506
1949	790	68	315	210	350
1950	918	112	230	132	444

Source: THE IRON AGE and *American Bureau of Metal Statistics.

COPPER POWDER SHIPMENTS

Net Tons

	Total	Bearings and Friction	Friction Materials	Graphite Metal Brushes	Misc.
1943	6,430	.....	.....	.....	.....
1944	6,770	.....	.....	.....	.....
1945	6,550	.....	.....	.....	.....
1946	7,380	5,900	560	330	590
1947	8,700	7,170	615	385	600
1948	8,580	6,560	675	575	770
1949	7,014	4,374	1,158	450	1,032
1950	13,109	9,488	1,271	957	1,393

Source: THE IRON AGE, estimated

SHIPMENTS OF IRON POWDER

Total Net Tons, Four Major Classes

	Total	Bearings and Parts	Friction Materials	Magnetic Cores	Miscellaneous
1943	2,135	.....	.....	.....	.....
1944	1,720	.....	.....	.....	.....
1945	1,950	.....	.....	.....	.....
1946	2,485	1,350	30	415	690
1947	3,115	1,560	30	600	845
1948	3,520	1,685	25	990	820
1949	3,235	1,746	14	935	540
1950	4,125	1,650	30	1,500	945

Source: THE IRON AGE

AVERAGE ZINC POWDER PRICE

¢ per Pound, F.O.B. Mill—100 Mesh

1950	
Jan.	15.50 to 18.25
Feb.	15.50 to 18.25
March	15.50 to 18.25
April	15.75 to 18.50
May	15.75 to 18.50
June	18.14 to 21.17
July	20.50 to 23.85
Aug.	20.50 to 23.85
Sept.	20.50 to 23.85
Oct.	20.50 to 23.85
Nov.	20.50 to 23.85
Dec.	20.50 to 23.85
1950 Average	20.50 to 23.85
1948 Average	15.41 to 18.71

Source: THE IRON AGE

METAL POWDER PART PLANTS

Plants With 21 Workers or More

Alabama	..	Nevada	..
Arizona	..	New Hampshire	..
Arkansas	..	New Jersey	12
California	2	New Mexico	..
Colorado	..	New York	12
Connecticut	4	North Carolina	..
Delaware	..	North Dakota	..
District of Columbia	..	Ohio	9
Florida	..	Oklahoma	..
Georgia	..	Oregon	..
Idaho	..	Pennsylvania	13
Illinois	11	Rhode Island	1
Indiana	3	South Carolina	..
Iowa	1	South Dakota	..
Kansas	..	Tennessee	1
Kentucky	1	Texas	1
Louisiana	..	Utah	..
Maine	1	Vermont	..
Maryland	1	Virginia	..
Massachusetts	11	Washington	..
Michigan	14	West Virginia	..
Minnesota	1	Wisconsin	1
Mississippi	..	Wyoming	..
Missouri	..		
Montana	..	Total	101
Nebraska	1		

(Source: THE IRON AGE Basic Marketing Data)

STAMPING PLANTS IN U. S.

Plants With 21 Workers or More

Alabama	44	Nevada	..
Arizona	2	New Hampshire	21
Arkansas	11	New Jersey	386
California	481	New Mexico	1
Colorado	28	New York	909
Connecticut	317	North Carolina	30
Delaware	9	North Dakota	1
District of Columbia	5	Ohio	686
Florida	36	Oklahoma	23
Georgia	54	Oregon	28
Idaho	3	Pennsylvania	549
Illinois	1092	Rhode Island	137
Indiana	310	South Carolina	5
Iowa	107	South Dakota	3
Kansas	39	Tennessee	83
Kentucky	60	Texas	92
Louisiana	18	Utah	8
Maine	13	Vermont	9
Maryland	78	Virginia	32
Massachusetts	397	Washington	34
Michigan	652	West Virginia	30
Minnesota	131	Wisconsin	271
Mississippi	7	Wyoming	3
Missouri	192		
Montana	..	Total	7620
Nebraska	30		

(Source: THE IRON AGE Basic Marketing Data)

Number of Foundries in Operation; Number of Diecasting Departments in U. S.; Number of Forge Shops and Heat Treating Plants.

METAL FACTS SECTION 5



MALLEABLE IRON FOUNDRIES

Plants With 21 Workers or More

Alabama	1	Nevada	..
Arizona	..	New Hampshire	..
Arkansas	1	New Jersey	6
California	6	New Mexico	..
Colorado	..	New York	16
Connecticut	7	North Carolina	1
Delaware	1	North Dakota	..
District of Columbia	..	Ohio	24
Florida	..	Oklahoma	1
Georgia	1	Oregon	..
Idaho	1	Pennsylvania	15
Illinois	22	Rhode Island	1
Indiana	11	South Carolina	1
Iowa	1	South Dakota	..
Kansas	..	Tennessee	..
Kentucky	..	Texas	5
Louisiana	1	Utah	..
Maine	..	Vermont	..
Maryland	..	Virginia	..
Massachusetts	4	Washington	4
Michigan	13	West Virginia	2
Minnesota	2	Wisconsin	13
Mississippi	..	Wyoming	..
Missouri	3		
Montana	..	Total	164
Nebraska	..		

(Source: THE IRON AGE Basic Marketing Data)

NUMBER OF STEEL FOUNDRIES

Plants With 21 Workers or More

Alabama	6	Nevada	..
Arizona	1	New Hampshire	3
Arkansas	1	New Jersey	10
California	29	New Mexico	..
Colorado	4	New York	21
Connecticut	6	North Carolina	1
Delaware	3	North Dakota	..
District of Columbia	1	Ohio	32
Florida	1	Oklahoma	1
Georgia	4	Oregon	7
Idaho	..	Pennsylvania	68
Illinois	25	Rhode Island	2
Indiana	15	South Carolina	..
Iowa	4	South Dakota	..
Kansas	3	Tennessee	3
Kentucky	1	Texas	12
Louisiana	4	Utah	1
Maine	..	Vermont	..
Maryland	3	Virginia	3
Massachusetts	9	Washington	18
Michigan	19	West Virginia	4
Minnesota	5	Wisconsin	15
Mississippi	..	Wyoming	..
Missouri	8		
Montana	..	Total	352
Nebraska	1		

(Source: THE IRON AGE Basic Marketing Data)

DIECASTING SHOPS IN U. S.

Plants With 21 Workers or More

Alabama	1	Nevada	..
Arizona	..	New Hampshire	1
Arkansas	..	New Jersey	39
California	61	New Mexico	..
Colorado	7	New York	50
Connecticut	20	North Carolina	..
Delaware	..	North Dakota	..
District of Columbia	..	Ohio	67
Florida	3	Oklahoma	1
Georgia	5	Oregon	1
Idaho	1	Pennsylvania	38
Illinois	92	Rhode Island	8
Indiana	23	South Carolina	..
Iowa	5	South Dakota	..
Kansas	1	Tennessee	4
Kentucky	3	Texas	6
Louisiana	..	Utah	..
Maine	..	Vermont	..
Maryland	1	Virginia	3
Massachusetts	17	Washington	2
Michigan	52	West Virginia	1
Minnesota	13	Wisconsin	10
Mississippi	1	Wyoming	..
Missouri	17		
Montana	..	Total	567
Nebraska	4		

(Source: THE IRON AGE Basic Marketing Data)

NONFERROUS FOUNDRIES

Plants With 21 Workers or More

Alabama	16	Nevada	..
Arizona	1	New Hampshire	13
Arkansas	1	New Jersey	70
California	124	New Mexico	1
Colorado	11	New York	138
Connecticut	56	North Carolina	6
Delaware	2	North Dakota	..
District of Columbia	1	Ohio	166
Florida	13	Oklahoma	9
Georgia	16	Oregon	5
Idaho	..	Pennsylvania	140
Illinois	123	Rhode Island	8
Indiana	56	South Carolina	6
Iowa	22	South Dakota	..
Kansas	12	Tennessee	16
Kentucky	6	Texas	23
Louisiana	8	Utah	4
Maine	5	Vermont	2
Maryland	10	Virginia	10
Massachusetts	65	Washington	15
Michigan	115	West Virginia	9
Minnesota	23	Wisconsin	53
Mississippi	1	Wyoming	2
Missouri	33		
Montana	3	Total	1429
Nebraska	8		

(Source: THE IRON AGE Basic Marketing Data)

GRAY IRON FOUNDRIES

Plants With 21 Workers or More

Alabama	60	Nevada	..
Arizona	1	New Hampshire	17
Arkansas	2	New Jersey	71
California	87	New Mexico	1
Colorado	12	New York	140
Connecticut	44	North Carolina	30
Delaware	4	North Dakota	1
District of Columbia	1	Ohio	220
Florida	8	Oklahoma	13
Georgia	43	Oregon	15
Idaho	1	Pennsylvania	258
Illinois	161	Rhode Island	10
Indiana	97	South Carolina	9
Iowa	47	South Dakota	1
Kansas	24	Tennessee	45
Kentucky	16	Texas	86
Louisiana	10	Utah	7
Maine	8	Vermont	12
Maryland	18	Virginia	27
Massachusetts	76	Washington	22
Michigan	141	West Virginia	13
Minnesota	45	Wisconsin	86
Mississippi	6	Wyoming	1
Missouri	38		
Montana	3	Total	1997
Nebraska	9		

(Source: THE IRON AGE Basic Marketing Data)

FORGE SHOPS IN OPERATION

Plants With 21 Workers or More

Alabama	22	Nevada	1
Arizona	1	New Hampshire	10
Arkansas	3	New Jersey	87
California	89	New Mexico	..
Colorado	13	New York	147
Connecticut	61	North Carolina	8
Delaware	3	North Dakota	..
District of Columbia	5	Ohio	195
Florida	13	Oklahoma	9
Georgia	19	Oregon	15
Idaho	3	Pennsylvania	220
Illinois	148	Rhode Island	14
Indiana	66	South Carolina	1
Iowa	23	South Dakota	1
Kansas	14	Tennessee	22
Kentucky	18	Texas	43
Louisiana	10	Utah	5
Maine	9	Vermont	11
Maryland	17	Virginia	18
Massachusetts	106	Washington	25
Michigan	124	West Virginia	24
Minnesota	30	Wisconsin	61
Mississippi	8	Wyoming	1
Missouri	32		
Montana	4	Total	1755
Nebraska	8		

(Source: THE IRON AGE Basic Marketing Data)

SHEET METAL DEPARTMENTS

Plants With 21 Workers or More

Alabama	54	Nevada	2
Arizona	6	New Hampshire	12
Arkansas	8	New Jersey	280
California	405	New Mexico	3
Colorado	34	New York	612
Connecticut	116	North Carolina	42
Delaware	11	North Dakota	2
District of Columbia	7	Ohio	674
Florida	36	Oklahoma	35
Georgia	61	Oregon	39
Idaho	4	Pennsylvania	446
Illinois	708	Rhode Island	24
Indiana	216	South Carolina	5
Iowa	104	South Dakota	6
Kansas	55	Tennessee	64
Kentucky	58	Texas	127
Louisiana	25	Utah	9
Maine	12	Vermont	13
Maryland	76	Virginia	34
Massachusetts	237	Washington	59
Michigan	426	West Virginia	25
Minnesota	113	Wisconsin	223
Mississippi	7	Wyoming	3
Missouri	148		
Montana	3	Total	5711
Nebraska	42		

(Source: THE IRON AGE Basic Marketing Data)

HEAT TREATING SHOPS

Plants With 21 Workers or More

Alabama	30	Nevada	1
Arizona	2	New Hampshire	19
Arkansas	7	New Jersey	271
California	237	New Mexico	..
Colorado	21	New York	324
Connecticut	221	North Carolina	23
Delaware	9	North Dakota	..
District of Columbia	4	Ohio	623
Florida	15	Oklahoma	28
Georgia	28	Oregon	32
Idaho	2	Pennsylvania	496
Illinois	494	Rhode Island	76
Indiana	206	South Carolina	2
Iowa	64	South Dakota	3
Kansas	19	Tennessee	37
Kentucky	27	Texas	64
Louisiana	10	Utah	8
Maine	10	Vermont	16
Maryland	46	Virginia	21
Massachusetts	282	Washington	44
Michigan	440	West Virginia	23
Minnesota	58	Wisconsin	136
Mississippi	6	Wyoming	2
Missouri	117		
Montana	1	Total	4819
Nebraska	15		

(Source: THE IRON AGE Basic Marketing Data)

CHECK LIST OF AIR POLLUTION CONTROL ORDINANCES

City	Date	Air Contaminants Prohibited	Test Method	Dense Smoke Standard	Fuel Burning Regulations: Installation	Fuel Burning Regulations: Inspection	Fuel Burning Regulations: Sales Reports	Smokeless Fuel Control	Boards: Appeal	Boards: Advisory	Rule Making Authority
Akron	1949	DS FA (8) F	TM	R3					Yes 9	Yes 9	Yes
Atlanta	1941A	DS FA (2)		R3	Yes	Annual	Yes		Yes 3	Yes 13	
Baltimore	1939	DS FA (6)	TM	R2	Yes	Annual	Yes	User-Sales	Yes 5	Yes 5	
Birmingham	1947	DS		R3	Yes			User	Yes 5		Yes
Boston	1947	DS FA		R3							
Buffalo	1947	DS FA F		R3	Yes	Annual	Yes	User-Sales			
Camden	1948	DS FA F		R2	Yes	Annual	Yes	User	Yes		
Chattanooga	1946	DS FA F		R2	Yes	Annual			Yes 5		
Chicago	1947	DS FA F		R3	Yes	Annual	Yes	User-Sales	Yes 5		
Cincinnati	1947	DS FA (3-7) F		U2	Yes	Annual		User-Sales	Yes 7		Yes
Cleveland	1947	DS FA (5) F	TM	R2	Yes			User	Yes	Yes	Yes
Columbus	1949	DS FA (8) F	TM	R2	Yes	Annual	Yes	User-Sales	Yes 5	Yes 5	Yes
Denver	1948	DS FA F		R2	Yes			User	Yes		Yes
Des Moines	1947	DS		R3	Yes				Yes	Yes 9	Yes
Detroit	1947	DS FA (4) F	TM	R2	Yes	Annual	Yes	User-Sales	Yes 5		Yes
Duluth	1931	DS F		R3	Yes				Yes 7		
Erie	1948	DS FA F		R3	Yes	Annual			Yes 3	Yes 9	Yes
Evansville	1949A	DS		R2	Yes				Yes 12	Yes 12	Yes
Flint	1917	DS		None	Yes						
Fort Wayne	1949	DS FA F		R2	Yes				Yes	Yes 5	Yes
Gary	1917	DS FA		None							
Grand Rapids	1926	DS FA		R3	Yes				Yes 3		
Harrisburg	1920A	DS		R3	Yes	Periodic				Yes 1	
Hartford	1937	DS		R3**	Yes						
Houston	1942	DS		None				User			
Indianapolis	1948	DS FA (9) F	TM	R2	Yes	Annual	Yes	User-Sales	AB	Yes 7	Yes
Jacksonville	1945	DS FA		None							
Jefferson City	1945	DS FA F		R2	Yes	Annual			Yes 5	Yes 5	Yes
Kansas City	1948	DS FA F		R3	Yes	Annual		User	Yes 5	Yes 5	Yes
Knoxville	3	DS FA F		R2	Yes	Periodic		User	Yes 7	Yes 7	
Lansing	1937	DS		U1						Yes 3	Yes
Long Beach	1	DS FA F		R2							
Los Angeles	1950	DS FA (1) F		R2	Yes	Periodic		User	Yes 3	Yes	Yes
Louisville	1949	DS FA F		R2	Yes	Annual		User-Sales	Yes 7	Yes 7	Yes
Memphis	3	DS FA F		R3	Yes			User			
Miami	1941	DS FA F		R3	Yes	Quarterly					
Milwaukee City	1948	DS FA (8) F	TM	R2	Yes	Annual	Yes	User-Sales	Yes 5	Yes 5	Yes
Minneapolis	1931	DS FA F		None	Yes			User			
Nashville	1947	DS FA (6) F	TM	R2	Yes	Annual	Yes	User-Sales	Yes 3		Yes
New Orleans	1934	DS		None	Yes						
New York	1950	DS FA F	TM	None	Yes	Periodic		User	Yes 5	Yes 3	Yes
Newark	1938	DS FA F		R2	Yes			User	Yes 3		Yes
Oakland	1	DS F		None							
Omaha	1947	DS FA (8) F	TM	R2	Yes	Annual	Yes		Yes 5	Yes 5	Yes
Peoria	1947	DS FA* F		R3	Yes	Annual	Yes		Yes 5	Yes	Yes
Philadelphia	1949	DS FA (8) F	TM	R2	Yes	Periodic			Yes 7	Yes 7	Yes
Pittsburgh	1948A	DS FA (6) F		R2	Yes	Annual	Yes	User-Sales	Yes 5		Yes
Portland	1943A	DS FA		R3**				User-Sales	Yes 5		
Providence	1947	DS FA* F		R2	Yes	Annual	Yes	Sales	Yes 5	Yes 5	Yes
Reading	1948[2]	DS FA IF		R2	Yes	Annual	Yes	Sales	Yes 5	Yes 5	Yes
Richmond	1947	DS FA (11)	TM	R3	Yes		Yes		Yes 5	Yes 7	Yes
Rochester	1	DS		Special							
Salt Lake City	1941	DS FA F		R2	Yes		Yes	User			
San Diego	1937	DS FA F		R3**							
San Francisco	1	DS FA		R3**							
Spokane	3	DS		None							
Springfield	3	DS		None							
St. Louis	1948	DS FA (10) F	TM	R2	Yes		Yes	User-Sales	Yes 5		Yes
St. Paul	1925	DS		R3						Yes 12	
Syracuse	1948	DS FA (3-8) F		R2	Yes		Yes	User-Sales			
Tacoma	1950	DS FA (7-3) F		R2	Yes				Yes 5		
Tampa	1943	None			Yes						
Toronto	1949	DS FA (3-8) F	TM	R3	Yes	Periodic	Yes		Yes 7	Yes 7	Yes
Trenton	1	DS FA		None							
Utica	3	DS FA (6)		R3	Yes	Periodic					
Wilmington	1949	DS		R2							
Yonkers	1950	DS FA F		R2	Yes						
Youngstown	1950	DS FA (6) F	TM	R2	Yes	Annual	Yes	User-Sales	Yes 7	Yes 7	Yes

SYMBOL EXPLANATIONS

Date refers to the year of adoption of the basic code or its most recent revision.

"A" Ordinances now being amended.

[1] Smoke regulations incorporated in city health code, date of which was not furnished.

[2] Proposal ordinance, not yet formally approved.

[3] Smoke regulations incorporated in city fire code, undated.

"DS" in Table I refers to Dense Smoke as measured by the Ringlemann chart illustrated in Chart 1, or to the "Unbrascore" in which one thickness of 60% opacity glass equals No. 1 scale, 2 thicknesses equals No. 2 scale, 3 thicknesses No. 3 scale, and 4 thicknesses equals No. 4 scale.

FA (—) Limits of emission of solids vary as follows:

(1) .2% by volume SO_2
.4 gr./cu.ft. adjusted to 12% CO_2 at gas temperature except that dust or fumes may not exceed amounts shown in table of ordinance varying from 48/100% of the process weight at 50 lbs./hr. to 67/1000% of the process weight of 60,000 lbs./hr. Maximum permitted 40 lbs./hr.

(2) 90% collection entering collector, minimum.

(3) 85% collection entering collector, minimum.

(4) .3 gr./cu.ft. at 500° F. and 50% excess air.

(5) .425 gr./cu.ft. at 500° F. 50% excess air.
Must collect 75% in equipment installed before ordinance and 85% with new equipment.

(6) .75 gr./cu.ft. at 500° and 50% excess air which amount not more than .2 gr./cu.ft. shall be larger than 325 mesh, 44 microns.

(7) .85 lbs. per 1,000 lbs. of gas—50% excess air.

(8) .85 lbs. per 1,000 lbs. of gas adjusted to 12% CO_2.

(9) .75 gr./cu.ft. at 500° F. 50% excess air of which not more than .2 gr./cu.ft. at 850° F. shall be larger than 325 mesh.

(10) .85 lbs. per 1,000 lbs. of gas containing 50% excess air. Maximum .5 lbs. per 1,000 lbs. of gas shall be larger than 325 mesh.

(11) 2 lbs. per 1,000 lbs. of gases at 12% CO_2—must collect 75%.

(12) For steam: 2.2 lbs. of dust/1000 lbs. of steam at 100,000 lbs. steam/hr. to .8 lbs. of dust/1000 lbs. steam at 1 million lbs. steam/hr.
For other processes: .85 lbs./1000 lbs. gas adjusted to 50 pct. excess air. Not to exceed .40 lbs./1000 lbs. of gas shall be larger than 325 mesh.

Various city ordinances define particuate matter as follows:

Cinders: Particles not ordinarily considered fly ash or dust because of their greater size, entrained in the products of combustion and consisting essentially of fused ash and/or unburned combustibles.

Dust and Fly Ash: Gas-borne or air-borne particles larger than one micron (approximately 0.00004 inch); two cities specify above 10 microns.

"F"—Fumes: Gases, vapors, metallic oxides that are of such character as to create an unclean, destructive, offensive or unhealthful condition.

* These codes limit the emissions, amounts unknown to the author.

** Greater than.

"TM" in Table I refers to Test Method specified. All those so marked use the American Society of Mechanical Engineers test code. Those not marked will apparently accept any recognized or accurate method.

The A.S.M.E. test code for dust emission is now the most widely used test method; however, others are used and acceptable in some cities. There is a great need for a practical instrument that will traverse the stack, automatically adjust the velocity in the sampling tube to the stack gas velocity and at the same time secure an accurate dust sample and a volume record of the escaping gases at the same time the dust sample is taken. Instrument engineers are working on this problem and if it can be solved, the cost of testing various types of equipment will be greatly reduced.

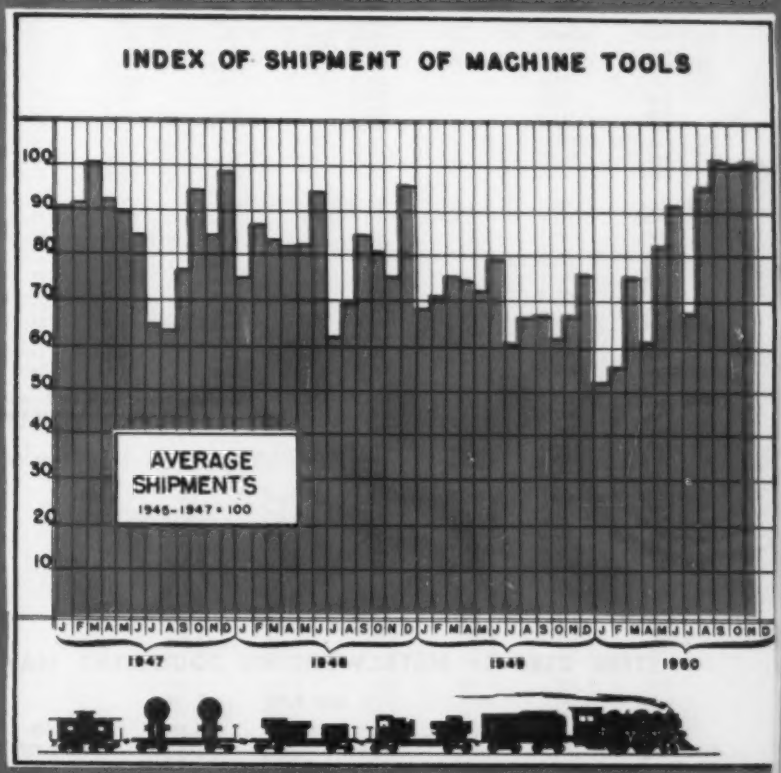
A figure entered after "yes" in the Boards' column indicates the number of members. Where no figures are shown the governing ordinance does not fix a definite number of appeal or advisory board members. The omission of an entry for a particular city in one or more columns is to be interpreted as meaning that the ordinance contains no such provisions.

Courtesy of the WHITING CORP.

THE IRON AGE 6 SECTION

METAL INDUSTRY FACTS

Machine Tools, Welding



IN THIS SECTION:

Page

BEARINGS, BALL
Imports 346

BEARINGS, ROLLER
Imports 346

BRAZING
Shops in plants 348

CONSUMPTION OF STEEL
By electrical eqpt. mfrs. 349
By metalworking eqpt. mfrs. 346

CONVEYING EQUIPMENT
Sales 349

DIVIDENDS, MACHINERY MAKERS 347

EMPLOYMENT
Hours, earnings, rates
Machine tool industry 349
No. of production workers
Machine tool industry 349
Wages and salaries 347

ELECTRICAL EQUIPMENT MAKERS
Steel consumption 349

ELECTRODES, WELDING 348

EXPORTS
Machine tools
By countries 350
By type 350
Motors, electric 346

FINANCIAL DATA
Machinery manufacturers 347

GEARS
Orders 347

IMPORTS
Bearings, ball and roller 346

INCOME, MACHINERY MAKERS 347

MACHINE TOOLS
Exports 350
Orders 346
Production 347
Shipments 346

MACHINERY MAKERS
Sales 347
Financial data 347

METALWORKING EQUIPMENT MAKERS
Steel consumption 346

MOTORS, ELECTRIC
Exports 346

ORDERS
Gears 347
Machine tools 346
Welding Equipment 348

PRODUCTION
Machine tools 347

PROFITS, MACHINERY MAKERS 347

SALES
Conveying equipment 349
Machinery Makers 347

SHIPMENTS
Machine tools 346
Trucks, industrial electric 349
Welding electrodes 348

SHOPS IN PLANTS
Brazing 348
Gas or arc welding 348
Resistance welding 348

STEEL CONSUMPTION
By electrical eqpt. mfrs. 349
By metalworking eqpt. mfrs. 346

TAXES, MACHINERY MAKERS 347

TRUCKS, INDUSTRIAL ELECTRIC
Shipments 349

WELDING
Orders
Arc welding machines 348
Arc welding sets 348
Shipments (electrodes) 348
Shops in plants, no. of 348

6 METAL FACTS SECTION

Machine Tool Orders and Shipments, Steel Sales for Machine Tools, Bearing Imports, Electric Motor Exports

INDEX OF MACHINE TOOL ORDERS AND SHIPMENTS

Average 1945 to 1947 = 100

	New Orders, Net	Foreign Orders, Net	Shipments 3 Month Average Centered
1943: Jan.	162.7	.....	376.9
Feb.	215.8	.....	369.6
Mar.	289.8	.....	403.6
Apr.	193.4	.....	402.8
May	164.4	.....	384.0
June	137.0	.....	360.9
July	91.6	.....	315.0
Aug.	111.6	.....	305.7
Sept.	104.8	.....	284.0
Oct.	104.5	.....	266.0
Nov.	107.5	.....	237.8
Dec.	94.0	.....	213.1
1944: Jan.	89.9	.....	188.6
Feb.	112.3	.....	178.6
Mar.	139.3	.....	161.7
Apr.	187.7	.....	152.3
May	199.5	.....	140.5
June	168.1	.....	130.8
July	108.9	.....	123.3
Aug.	137.3	.....	117.1
Sept.	112.3	.....	124.4
Oct.	193.8	.....	123.7
Nov.	197.2	.....	126.1
Dec.	210.0	.....	127.2
1945: Jan.	197.7	.....	128.7
Feb.	191.6	.....	132.1
Mar.	160.5	.....	136.3
Apr.	94.9	.....	141.2
May	99.3	.....	143.0
June	72.5	.....	134.0
July	53.9	.....	124.8
Aug.	11.5	.....	108.3
Sept.	51.6	6.4	106.3
Oct.	64.4	11.3	99.1
Nov.	79.0	16.7	94.3
Dec.	112.6	49.6	93.1
1946: Jan.	115.6	44.3	93.9
Feb.	79.8	24.0	96.4
Mar.	100.6	26.8	96.1
Apr.	123.4	25.3	96.1
May	107.9	24.1	97.7
June	109.1	35.7	90.8
July	99.0	29.3	90.2
Aug.	99.9	22.4	86.1
Sept.	86.4	18.3	93.3
Oct.	85.3	22.1	92.6
Nov.	73.2	24.5	95.2
Dec.	72.7	21.8	92.4
1947: Jan.	71.1	21.0	93.1
Feb.	63.8	15.8	94.8
Mar.	74.3	20.1	95.4
Apr.	69.8	18.8	94.3
May	76.9	16.3	88.9
June	90.9	17.2	79.5
July	81.1	16.7	71.0
Aug.	62.1	14.6	68.6
Sept.	63.7	14.7	78.5
Oct.	81.0	16.0	85.5
Nov.	75.6	11.5	92.6
Dec.	81.1	14.8	86.1

* Beginning January 1948, net shipment index reported, instead of 3-month centered shipment average.

	New Orders, Net	Foreign Orders, Net	Shipments*
1948: Jan.	83.1	14.0	75.3
Feb.	73.3	12.7	87.1
Mar.	86.3	16.1	83.6
Apr.	86.3	14.1	82.0
May	73.5	11.4	82.6
June	83.4	11.9	94.4
July	74.0	13.3	62.4
Aug.	73.7	13.6	69.8
Sept.	71.1	11.6	84.7
Oct.	67.4	14.0	80.4
Nov.	72.2	18.1	76.2
Dec.	76.7	16.2	96.9
1949: Jan.	87.0	21.9	68.8
Feb.	80.9	26.5	70.3
Mar.	93.5	22.3	75.8
Apr.	70.1	23.1	74.7
May	63.7	15.8	72.8
June	53.6	15.7	79.0
July	48.0	14.0	60.7
Aug.	51.5	18.8	67.3
Sept.	57.7	13.7	67.6
Oct.	56.8	13.7	62.3
Nov.	84.3	17.0	67.6
Dec.	82.5	22.4	75.7
1950: Jan.	99.7	26.7	52.8
Feb.	89.2	18.8	56.1
Mar.	107.4	24.9	75.3
Apr.	98.9	17.4	61.6
May	116.4	18.4	82.5
June	124.1	23.0	91.9
July	253.1	22.3	68.3
Aug.	305.1	34.2	95.7
Sept.	280.6	27.2	101.6
Oct.	290.5	48.8	101.1

STEEL USED BY METALWORKING EQUIPMENT MAKERS

Net Tons

Type	1947	1948	1949	1950*
Semifinished	4,541	5,680	2,737	2,702
Wire Rods	9,754	7,923	6,029	13,904
Structural Shapes	8,167	2,544	3,102	1,882
Plates	65,825	58,012	59,760	76,323
Rails	.....	.....	29	.....
Bars				
Hot Rolled	24,736	16,090	15,412	16,308
Cold Finished	42,139	33,401	21,723	22,141
Tool Steel	5,044	2,799	9,277	8,214
Pipe and Tubing	4,911	7,822	2,027	1,523
Wire				
Drawn	28,060	37,474	24,971	34,839
Nails and Staples	1,670	2,293	2,180	13,153
Black Plate	228	43	182	24
Tin and Terne Plate	82	16	12	52
Sheets				
Hot Rolled	38,591	18,375	10,718	8,212
Cold Rolled	6,038	8,247	7,327	5,371
Coated	814	.....	554	5,166
Electrical Sheet and Strip	4,220	3,584	993	1,078
Strip				
Hot Rolled	9,911	7,047	4,384	4,688
Cold Rolled	4,587	5,052	4,853	5,825
Total	259,316	218,233	179,050	221,405

* Nine months.

Source: American Iron & Steel Institute
Compilation & Allocation by THE IRON AGE

ELECTRIC MOTOR EXPORTS

Value in Thousands of Dollars

	Fractional Hp ⅓ Hp and Under		Fractional Hp Over ⅓ and Under 1 Hp	
	No.	Value	No.	Value
1938	103,980	$779	10,734	$273
1939	135,544	849	17,285	345
1940	154,395	1,005	15,225	350
1941	198,735	1,250	28,863	603
1942	132,523	735	16,532	462
1943	69,974	569	8,991	281
1944	65,300	738	15,463	408
1945	75,212	878	24,384	621
1946	156,222	1,306	37,200	1,050
1947	275,255	3,002	80,303	3,079
1948	248,717	3,353	80,739	2,895
1949	204,663	2,372	40,810	1,536
1950 (7 Months)	129,257	1,209	14,300	514

	Stationary, 1 to 200 Hp		Stationary, Over 200 Hp	
	No.	Value	No.	Value
1938	9,875	$1,481	91	$499
1939	12,654	1,480	100	472
1940	16,864	2,495	131	585
1941	28,626	2,655	167	1,001
1942	25,712	3,114	73	265
1943	37,136	5,084	235	1,203
1944	40,540	7,514	577	3,636
1945	54,434	9,061	338	1,968
1946	64,871	9,374	439	2,283
1947	108,747	13,479	538	2,848
1948	93,183	15,627	432	3,064
1949	48,041	14,008	511	7,743
1950 (7 Months)	14,416	4,014	185	3,418

Source: Dept. of Commerce

ROLLER BEARING IMPORTS

Value in Thousands of Dollars

1938	$334	1944	$ 14
1939	181	1945	26
1940	213	1946	167
1941	138	1947	67
1942	28	1948	126
1943	8	1949	38
		1950 (7 months)	7

Source: Bureau of Census

BALL BEARING IMPORTS

Value in Thousands of Dollars

1938	$380	1944	$481
1939	267	1945	85
1940	145	1946	107
1941	676	1947	39
1942	54	1948	55
1943	20	1949	49
		1950 (7 months)	24

Source: Bureau of Census

Machine Tool Production by Types, Gear Orders, Machinery Makers' Financial Data

METAL FACTS SECTION 6

PRODUCTION OF SELECTED TYPES OF MACHINE TOOLS

Thousands of Dollars

	1943		1944		1945		1946		1947		1948		1949	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
Horizontal and Vertical Boring Machines	7,278	$103,144	3,070	$44,321	1,901	$29,415	1,888	$27,454	1,444	$25,825	1,268	$24,098	1,127	$29,430
Horizontal, Vertical and Radial Drills	41,581	94,747	21,994	46,623	11,731	22,784	.....	33,970	.....	33,517	.....	32,816	6,305	25,271
Gear Cutting Machines	6,186	54,608	2,683	28,962	1,295	11,443	1,852	17,820	1,682	17,719	1,367	16,407	1,095	14,231
Grinding Machines	58,810	228,280	21,687	85,433	10,741	43,413	97,799	57,123	.....	56,384	98,792	47,294	64,257	45,660
Honing and Lapping Machines	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	154	1,811
Lathes, Engine:														
**Automatic and Hand Operated, Horizontal Turret	80,196	410,670	43,209	168,780	23,929	93,688	42,927	103,324	.....	92,908	29,322	81,106	18,631	62,289
Milling Machines	30,819	192,695	10,975	71,015	5,799	35,407	9,929	41,155	7,504	35,278	6,064	34,914	4,397	31,400
Broaching Machines	802	7,507	416	3,151	281	2,222	573	4,657	532	4,956	343	3,779	290	3,411
Planers	618	20,852	344	10,962	226	7,344	206	4,853	152	4,018	157	4,828	99	3,899
Shapers and Slotters	.....	.....	.....	.....	.....	.....	2,110	7,159	1,787	6,880	1,369	5,826	666	2,831
Threading Machines	.....	.....	.....	.....	.....	.....	475	1,640	618	2,363	533	2,286	469	3,065

Source: Dept. of Commerce and War Production Board

INDEX OF GEAR ORDERS

Average Sales 1935 to 1939 = 100

	January	February	March	April	May	June	July	August	September	October	November	December
1936	89.1	90.2	91.7	104.6	105.9	102.9	111.6	113.5	116.2	115.8	115.8	134.6
1937	150.5	127.8	202.5	167.7	125.6	135.5	129.2	131.3	125.7	148.2	132.9	100.4
1938	96.7	78.9	93.5	72.1	68.3	59.9	68.3	75.3	84.8	72.2	68.8	77.3
1939	87.7	84.3	105.0	86.7	90.7	93.5	89.8	93.7	125.5	133.3	128.6	110.0
1940	126.5	113.4	111.4	128.5	130.9	126.9	132.9	184.4	177.3	198.0	170.1	202.1
1941	251.4	557.1	392.0	263.4	246.1	269.3	282.5	257.1	216.1	240.4	241.0	233.9
1942	298.9	323.4	455.3	376.1	430.4	362.7	345.7	395.8	354.9	228.4	329.9	302.2
1943	326.0	365.8	417.0	257.4	376.9	472.5	424.8	347.8	360.0	390.6	246.9	411.2
1944	252.5	203.3	418.8	247.4	323.4	274.5	221.4	220.6	285.5	279.0	220.3	228.9
1945	299.2	261.8	345.8	300.5	227.7	240.1	203.5	154.6	186.9	240.2	234.3	212.8
1946	265.8	225.4	265.9	290.9	258.8	279.0	362.2	330.9	292.9	245.4	280.9	386.1
1947	317.0	303.0	342.9	346.2	317.2	278.0	278.5	261.6	297.7	317.7	356.9	343.6
1948	346.8	324.4	389.8	320.9	283.6	324.1	348.4	335.6	320.4	333.3	309.0	325.9
1949	320.7	282.3	299.1	339.0	250.1	227.8	193.1	262.0	224.9	242.3	233.7	242.8
1950	289.2	272.9	358.4	328.6	363.1	431.0	410.7	617.4	.....	.....	.....	.....

Source: American Gear Manufacturers Assn.

MACHINERY MAKERS' SALES

Except Electrical—in Millions

	Sales	Profits,* After Taxes	Profits,* Pct of Sales
1930	3,498	149	4.3
1931	2,295	− 79	− 3.4
1932	1,342	−213	−15.9
1933	1,458	− 45	− 3.1
1934	1,898	85	4.5
1935	2,419	163	6.7
1936	3,358	284	8.5
1937	4,144	354	8.5
1938	3,008	154	5.1
1939	3,463	261	7.5
1940	4,568	448	9.8
1941	7,222	669	9.3
1942	9,437	574	6.1
1943	10,732	484	4.5
1944	11,012	555	5.0
1945	9,801	332	3.4
1946	9,117	378	4.2
1947	13,145	910	7.9
1948	14,721	1,029	7.0
1949	12,900	779	6.0

* Includes inventory profit adjustment in years prior to 1944.

Source: National Industrial Conference Board

FINANCIAL DATA ON MACHINERY MANUFACTURERS

Except Electrical—Millions of Dollars

	Total Income	Wages and Salaries	Interest	Taxes, Incl. Income and Excess Profit	Corporate Profits after Taxes			Income of Unincorporated Enterprises
					Total Profit	Dividends	Undistributed Profits	
1930	1,485	1,184	−22	36	271	214	57	16
1931	755	782	−23	13	−19	137	−156	2
1932	298	496	−21	5	−179	70	−249	−3
1933	476	500	−19	11	−67	47	−114	1
1934	735	685	−18	26	35	81	−46	7
1935	1,021	831	−18	38	158	105	53	12
1936	1,398	1,048	−18	73	275	182	93	20
1937	1,759	1,389	−12	101	258	220	38	23
1938	1,247	1,007	−16	46	196	140	56	14
1939	1,492	1,165	−16	66	258	154	104	19
1940	2,181	1,502	−19	240	426	200	226	32
1941	3,850	2,430	−22	774	611	238	373	67
1942	5,459	3,585	−27	1,076	561	211	363	145
1943	6,037	4,162	−24	1,017	498	188	310	231
1944	6,000	4,180	−17	818	555	189	366	300
1945	5,191	3,900	−14	563	332	182	150	287
1946	4,830	3,987	−23	358	378	230	148	195
1947	6,324	4,484	− 9	630	910	299	611	145
1948	6,999	5,359	− 8	527	1,029	380	399	125
1949	6,222	4,658	− 4	690	779	355	674	80

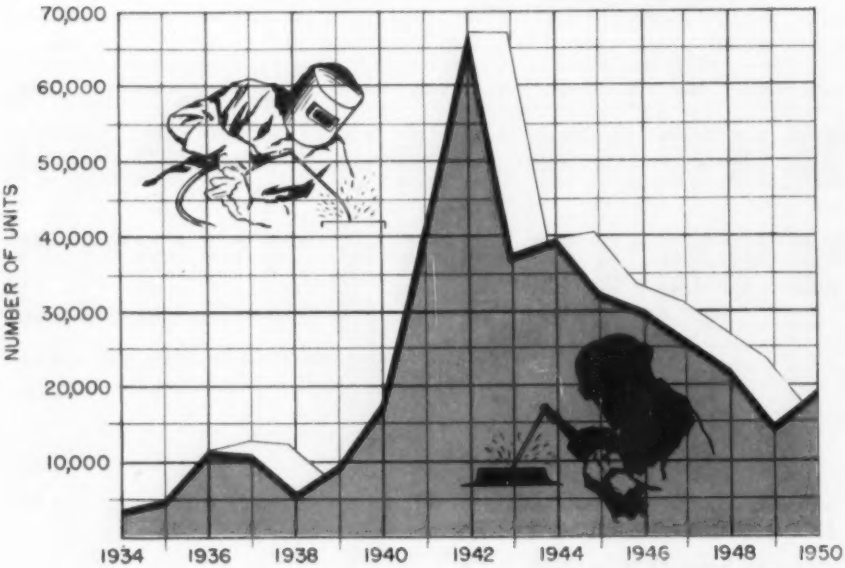
Source: National Industrial Conference Board

6 METAL FACTS SECTION

Sales of Welding Sets and Electrodes, Welding and Brazing Departments in Metalworking Plants

ARC WELDING MACHINE ORDERS

DC SETS, SINGLE OPERATOR, VARIABLE VOLTAGE



ARCWELDING SET ORDERS

Number of Units, Excluding Exports

Years	Single Operator, Variable Voltage, DC Sets: Motor Drive	Engine Drive	Generators Only	Transformer Welders: Industrial Type	Limited Input Type
1934	3,072	562	.....	.....	.....
1935	4,307	860	.....	.....	.....
1936	8,786	2,068	737	.....	.....
1937	8,182	1,738	1,069	.....	.....
1938	4,014	1,007	904	.....	.....
1939	7,242	1,525	995	.....	.....
1940	13,646	2,649	1,168	2,478	
1941	35,656	4,412	1,415	4,217	
1942	60,254	5,051	2,674	8,236	
1943	30,437	4,747	2,068	4,439	
1944	30,230	6,023	3,140	15,426	
1945	20,716	8,776	2,795	21,448	
1946	16,467	10,622	2,818	21,093	16,949
1947	13,677	10,822	1,169	9,719	13,034
1948	10,927	10,435	385	8,792	13,690
1949	7,393	6,193	256	7,295	12,647
1950: Jan.	543	412	13	617	1,026
Feb.	577	505	30	463	1,102
March	757	791	34	639	1,794
April	543	742	40	582	1,351
May	644	666	16	528	1,535
June	745	621	35	854	1,184
July	840	886	17	886	1,310
Aug.	994	754	20	1,225	1,780

Source: National Electrical Mfrs. Assn.

WELDING ELECTRODE SHIPMENTS

Cut Lengths and Coils—Pounds

Year	Total Electrodes	Mild Steel Electrodes	Alloy Steel Electrodes	Bronze and Copper Base	Aluminum and Aluminum Alloys	Hard-facing	Total Non-ferrous
1940	198,995,598	.....	.....	.....	.....	.....	.....
1941	377,564,483	.....	.....	.....	.....	.....	.....
1942	666,965,595	.....	.....	.....	.....	.....	.....
1943	971,929,787	.....	.....	.....	.....	.....	.....
1944	776,993,101	707,756,964	69,736,137	.....	.....	.....	.....
1945	494,819,155	435,789,217	59,029,938	.....	.....	.....	.....
1946	309,117,564	284,126,356	24,991,208	.....	.....	.....	.....
1947	335,078,645	307,756,469	25,172,362	809,668	285,036	50	2,149,758
1948	401,359,255	389,0 9,831	30,214,928	717,154	202,736	4,255	2,124,496
1949	299,932,909	273,463,740	24,753,807	572,601	139,804	13,185	1,715,362
1950*	193,146,193	197,097,222	23,678,279	260,649	117,759	3,960	1,211,992

* 8 months.

Source: National Electrical Mfrs. Assn.

GAS OR ARC WELDING SHOPS

In Plants With Over 21 Workers

Alabama	72	Nebraska	50
Arizona	7	Nevada	7
Arkansas	10	New Hampshire	21
California	662	New Jersey	382
Colorado	50	New Mexico	4
Connecticut	167	New York	791
Delaware	18	North Carolina	82
District of Columbia	11	North Dakota	2
Florida	47	Ohio	1039
Georgia	87	Oklahoma	74
Idaho	5	Oregon	69
Illinois	908	Pennsylvania	736
Indiana	317	Rhode Island	50
Iowa	144	South Carolina	13
Kansas	79	South Dakota	6
Kentucky	68	Tennessee	90
Louisiana	46	Texas	182
Maine	23	Utah	21
Maryland	100	Vermont	21
Massachusetts	348	Virginia	56
Michigan	719	Washington	105
Minnesota	169	West Virginia	43
Mississippi	15	Wisconsin	332
Missouri	204	Wyoming	2
Montana	8	Total	8,404

(Source: THE IRON AGE Basic Marketing Data)

BRAZING DEPARTMENTS

In Plants With Over 21 Workers

Alabama	14	Nebraska	11
Arizona	1	Nevada	...
Arkansas	...	New Hampshire	3
California	191	New Jersey	173
Colorado	14	New Mexico	...
Connecticut	87	New York	280
Delaware	1	North Carolina	12
District of Columbia	3	North Dakota	...
Florida	18	Ohio	270
Georgia	16	Oklahoma	12
Idaho	...	Oregon	16
Illinois	288	Pennsylvania	287
Indiana	66	Rhode Island	27
Iowa	35	South Carolina	2
Kansas	20	South Dakota	2
Kentucky	21	Tennessee	19
Louisiana	9	Texas	44
Maine	6	Utah	3
Maryland	35	Vermont	4
Massachusetts	142	Virginia	10
Michigan	210	Washington	27
Minnesota	31	West Virginia	9
Mississippi	2	Wisconsin	61
Missouri	51	Wyoming	2
Montana	1	Total	2,486

(Source: THE IRON AGE Basic Marketing Data)

RESISTANCE WELDING SHOPS

In Plants With Over 21 Workers

Alabama	49	Nebraska	41
Arizona	4	Nevada	1
Arkansas	8	New Hampshire	15
California	414	New Jersey	306
Colorado	22	New Mexico	...
Connecticut	174	New York	603
Delaware	9	North Carolina	29
District of Columbia	5	North Dakota	...
Florida	23	Ohio	707
Georgia	53	Oklahoma	31
Idaho	2	Oregon	34
Illinois	753	Pennsylvania	480
Indiana	269	Rhode Island	29
Iowa	97	South Carolina	6
Kansas	40	South Dakota	3
Kentucky	52	Tennessee	54
Louisiana	19	Texas	93
Maine	11	Utah	11
Maryland	86	Vermont	9
Massachusetts	268	Virginia	29
Michigan	505	Washington	46
Minnesota	116	West Virginia	25
Mississippi	4	Wisconsin	236
Missouri	172	Wyoming	...
Montana	2	Total	5,903

(Source: THE IRON AGE Basic Marketing Data)

Machine Tool Industry Labor, Electric Industrial Truck and Conveying Equipment Sales, Electric Machinery Makers' Steel Use

METAL FACTS SECTION 6

MACHINE TOOL LABOR

Workers in Machine Tool Industry

Year	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Production Workers (thousands)
1947	$80.52	42.0	$1.441	74.5
1948	65.21	41.8	1.560	68.6
1949	64.16	39.7	1.618	57.3
1950: Jan.	63.64	39.6	1.607	36.0
Feb.	65.37	40.6	1.610	36.4
Mar.	66.95	41.1	1.629	36.6
Apr.	69.56	41.8	1.664	37.0
May	72.25	42.6	1.636	37.7
June	74.38	43.2	1.631	38.7
July	66.66	42.3	1.581	38.7
Aug.	71.81	44.6	1.610	41.4
Sept.	75.18	45.4	1.656	44.5

Source: Bureau of Labor Statistics

INDUSTRIAL TRUCK SHIPMENTS

Electric Powered—No. of Units

Year	Total	Domestic	Export
1935	925	850	75
1936	1,250	1,165	85
1937	1,850	1,740	110
1938	840	670	170
1939	1,080	910	170
1940	1,775	1,570	145
1941	3,095	2,830	250
1942	4,570	4,370	205
1943	4,490	4,285	215
1944	4,775	4,380	395
1945	3,850	3,625	225
1946	2,670	2,715	160
1947	4,130	3,565	570
1948	3,450	2,900	945
1949	2,601	2,251	350
1950*	1,722	1,508	214

*Eight months.

Source: Electrical Industrial Truck Assn.

STEEL USED BY ELECTRICAL EQUIPMENT MAKERS

Mill Shipments—Net Tons

Item	1946	1947	1948	1949	1950 9 Months
Ingots, blooms, billets, slabs, sheet bars, and seamless tube rounds	13,928	38,423	11,451	3,537	2,110
Wire rods	17,317	27,086	15,784	7,040	8,549
Structural shapes	22,833	43,223	27,211	18,892	15,400
Plates (sheared and universal)	80,393	145,720	106,677	128,880	104,092
Track spikes	.....	.....	8	.....	.....
Bars:					
Hot-rolled	94,717	103,346	109,706	74,741	83,096
Cold-finished	42,563	44,341	38,452	24,450	31,882
Concrete reinforcing	.....	.....	.....	.....	.....
Tool steel	380	342	257	128	90
Pipe and tubes:					
Butt weld	88,763	115,468			
Lap weld	6,837	13,132	138,827	127,995	127,627
Electric weld	1,181	2,103			
Seamless	3,823	1,393			
Conduit	28,190	34,367	48,949	32,887	.....
Mechanical and pressure tubing	2,676	5,577	8,373	7,329	8,084
Wire:					
Drawn	31,887	56,643	57,129	62,254	55,841
Nails and staples	659	429	847	538	432
Black plate, ordinary	1,345	1,781	4,277	2,984	5,732
Tin and terneplate:					
Hot dip	382	1,033	1,030	1,429	2,876
Electrolytic	330	1,544	1,017	303	449
Hot-rolled sheets	220,242	245,313	230,652	134,111	126,987
Cold-rolled sheets	85,653	122,030	139,197	90,536	114,936
Coated sheets	30,272	31,453	24,856	19,101	24,078
Electrical sheets and strip	270,568	436,614	450,893	342,528	419,230
Enameling sheets	1,978	2,744	3,606	1,342	4,254
Hot-rolled strip	61,096	78,885	81,189	54,235	57,606
Cold-rolled strip	46,481	42,530	94,118	69,095	83,505
Wheels	2	.....	76	236	.....
Axles	16	.....	8	.....	.....
All other	.....	.....	140	.....	.....
Tota.. steel products	1,154,506	1,595,520	1,594,700	1,209,027	1,277,923

* IRON AGE estimate.

Source: American Iron & Steel Institute

A listing of important trade associations and technical societies in metalworking and metal producing begins on p. 150. . . . For your calendar of metalworking meetings scheduled for the coming year turn to p. 114. . . . Don't miss "How to Sell to Uncle Sam," on p. 269.

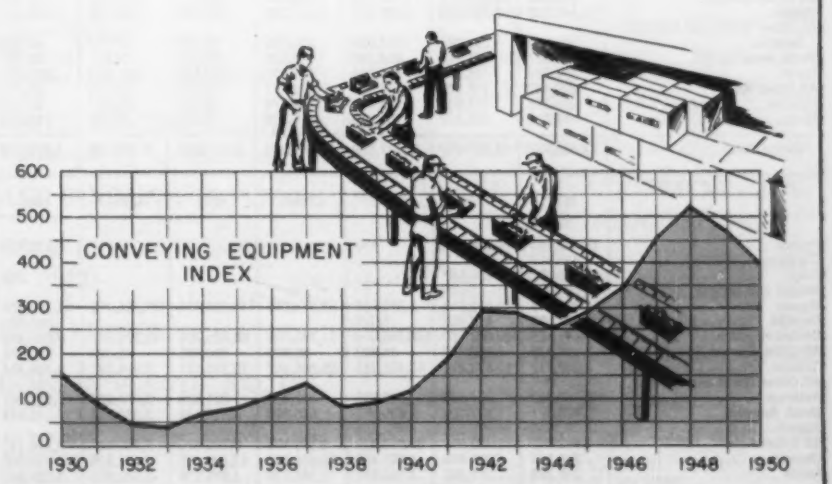
CONVEYING EQUIPMENT INDEX

Average Sales 1935 to 1948 = 100

Year	Index	Year	Index
1929	191	1940	114
1930	154	1941	186
1931	84	1942	287
1932	47	1943	282
1933	44	1944	255
1934	64	1945	288
1935	77	1946	348
1936	104	1947	458
1937	133	1948	522
1938	86	1949	469
1939	96	1950	380*

* Nine months.

Source: Conveyor Equipment Mfrs. Assn.



MACHINE TOOL EXPORTS

By Types—In Thousands of Dollars

	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950*
Engine Lathes Including Tool Room	939	1,369	2,825	3,649	6,644	6,534	16,025	13,094	12,939	23,056	19,377	7,918	8,872	7,707	6,335	6,603	2,493
Bench Lathes												764	1,423	2,332	1,269	1,119	479
Turret Lathes Including Vertical	568	881	1,847	3,839	5,986	7,486	17,844	18,162	21,824	33,997	10,829	2,576	2,793	2,824	811	1,977	1,631
Ram and Saddle Type Turret Lathes												1,893	4,070	3,888	2,299	1,879	1,065
Automatic Chucking and Between-Centers Lathes										10,407	5,821	2,112	5,377	6,798	1,745	3,760	4,631
Polishing and Buffing Machines								11,180	11,649	1,968	1,077	1,229	2,113	2,943	1,272	1,040	422
Other Lathes	610	945	1,337	1,420	2,166	3,399	14,138			6,910	9,489	3,062	6,171	5,661	2,612	1,241	808
Vertical Boring and Turning Mills								10,139	7,495	4,445	7,858	5,820	2,970	2,459	1,727	2,201	1,803
Other Boring Machines Including Precision	502	1,061	1,801	2,382	3,628	5,248	10,112			5,607	6,040	4,680	3,309	3,110	1,727	2,178	1,716
Tapping and Threading Machines										4,650	1,062	912	1,375	1,519	1,566	2,809	1,541
Automatic Screw Machines, Bar	1,017	1,391	2,236	3,759	4,392	5,605	20,036	17,657	16,137	17,579	15,706	763	2,258	3,288	2,905	5,372	3,211
Knee and Column Type Milling Machines	590	962	1,168	3,599	4,629	6,689	15,191	19,668	17,326	13,921	2,990	2,533	7,618	4,813	2,701	3,925	2,367
Other Milling Machines	1,281	2,005	2,458	3,639	9,955	12,563	23,831	27,865	18,751	24,499	14,547	5,378	10,868	8,569	5,487	4,175	3,729
Gear Cutting Machines	1,442	1,441	2,126	2,606	3,106	3,988	7,681	3,985	1,765	6,024	4,379	3,225	3,633	6,221	4,976	4,741	4,177
Sensitive Drilling Machines, Except Bench								3,690	2,824	1,911	677	1,129	1,065	1,539	1,098	1,010	502
Radial Drilling Machines	137	173	226	606	864	977	3,026	1,562	1,557	3,587	2,998	3,002	3,768	2,404	1,107	964	791
Other Drilling Machines	1,441	1,730	2,321	2,527	2,824	3,147	10,245	6 987	5,669	6,211	1,646	1,299	2,557	3,313	1,346	1,672	1,294
Planers	201	577	449	1,050	2,794	4,020	5,969	1,924	4,248	2,190	8,881	6,235	4,489	2,511	1,609	1,768	880
Shapers								2,469	3,298	3,243	1,731	1,713	3,162	2,109	1,183	934	459
Surface Grinders	356	934	1,081	1,746	2,769	2,559	5,600	5,450	5,567	5,429	4,219	1,869	3,468	3,482	2,003	2,543	1,818
External Grinders	772	890	1,039	1,568	4,082	3,963	7,136	5,824	3,660	9,214	5,682	2,810	3,412	3,183	1,217	3,590	2,781
Internal Grinders	974	1,068	1,259	2,451	3,990	4,218	8,294	3,294	3,000	5,614	2,934	1,554	1,972	2,673	1,195	2,360	1,671
Tool and Cutter, and Universal Cylindrical Grinders	631	1,236	1,552	2,002	3,267	3,891	7,927	5,999	5,475	7,998	7,167	2,409	3,281	3,865	2,069	2,295	1,439
Gear Tooth Grinders										999	1,725	763	2,090	1,923	1,339	1,133	799
Honing and Lapping Machines										1,435	668	185	1,658	493	151	273	93
Thread Grinding Machines										3,528	3,631	558	525	745	427	901	637
Other Grinding Machines	607	688	1,088	1,823	3,417	5,478	12,494	7,586	14,332	15,251	6,969	331	462	346	137	335	234
Horizontal Boring Drilling and Milling Machines										6,602	10,970	4,095	3,870	4,655	3,338	2,247	1,018
Other Gear Honing and Finishing Machines												4,105	7,010	2,875	2,426	3,689	2,823
Broaching Machines										2,137	1,073	335	1,072	1,263	918	397	1,983
All Other Machine Tools										4,718	3,423	377	527	1,336	554	1,288	1,673
												2,845	2,799	4,482	3,256	2,188	1,329
Total	12,047	17,352	24,854	38,445	64,516	79,767	185,554	166,533	157,534	237,122	163,599	78,487	110,036	105,328	62,806	72,621	49,957

* Nine months.

MACHINE TOOL EXPORTS

By Country of Destination—In Dollars

	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
France	1,217,500	2,886,662	3,592,614	1,992,599	759,537	526,257	405,427	1,975,837	1,451,995	1,400,987	3,486,243	4,287,101
Germany	2,310,028	1,715,764	1,362,332	597,683	793,569	72,836	221,762	398,234	272,731	85,174	167,425	901,531
Italy	440,196	669,615	1,141,937	590,466	356,591	252,761	282,415	496,933	3,165,623	1,165,769	1,244,058	748,185
Poland and Danzig	29,713	71,765	72,163		52,938	21,776	320,265	113,927	235,930	264,479	574,272	1,114,347
Russia	760,956	823,545	1,531,371	7,216,773	11,678,155	1,952,753	343,299	2,255,441	4,563,153	7,250,277	4,701,116	24,216,444
Sweden	288,787	427,075	897,584	376,004	165,646	23,883	52,570	325,710	526,722	593,672	1,008,294	672,932
United Kingdom	2,796,544	2,435,193	3,961,339	2,559,999	2,295,564	1,469,589	1,115,904	2,676,245	3,085,682	7,533,053	10,900,900	6,990,255
All Other Europe	828,508	2,039,274	1,779,379	1,183,099	289,675	187,220	149,008	338,399	537,530	1,111,733	2,049,471	2,529,282
Canada	1,691,225	2,780,950	2,358,537	1,442,128	680,868	699,615	197,290	483,045	518,641	1,254,268	2,951,367	1,472,015
All Other North and Central America	253,850	281,997	311,625	316,326	68,896	47,177	67,574	142,267	251,185	452,896	333,942	170,936
South America	870,367	751,245	608,346	720,826	80,060	43,988	86,087	197,945	351,886	352,199	612,980	743,017
Japan	421,036	496,368	570,295	554,805	159,614	801,893	1,025,236	2,188,601	1,635,837	2,604,994	8,976,817	18,501,722
All Other Asia	209,627	257,049	378,425	292,457	135,613	47,426	55,714	306,301	426,496	323,156	678,676	1,180,789
Oceania	365,313	186,609	195,240	123,676	26,332	24,967	35,175	155,486	179,819	230,699	485,956	606,130
Africa	85,018	125,329	100,373	66,379	27,949	18,104	30,971	90,654	149,158	230,725	293,347	380,886
Grand Total	12,568,722	15,957,440	18,861,560	18,043,220	17,571,067	6,190,269	4,407,410	12,078,037	17,389,095	24,912,911	38,537,642	64,828,143

	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950*
France	15,769,287	26,076,868	180				2,370,233	26,393,443	11,620,848	6,449,691	9,061,505	9,020,265
Germany	469,497							544,661	746,808	35,673	2,423,223	1,464,512
Italy	513,992	608,947					258	35,184	458,147	2,570,124	13,010,953	13,144,821
Poland and Danzig	724,892							4,159,570	4,807,640	2,818,237	409,725	
Russia	14,327,013	12,332,013	3,679,052	35,577,260	119,586,711	122,226,745	54,165,818	33,437,984	15,442,605	1,804,652	110,000	
Sweden	851,859	413,495	7,316				384,781	4,668,897	7,730,980	2,147,573	2,485,968	1,398,618
United Kingdom	19,891,826	108,008,189	104,745,018	71,784,784	68,925,396	19,374,755	4,809,862	3,938,382	6,536,347	7,923,881	6,785,472	4,400,042
All Other Europe	2,315,372	1,663,162	58,863	36,378	140,060	64,397	482,400	11,740,467	17,739,793	13,120,488	15,056,817	6,914,047
Canada	2,548,717	12,673,371	43,433,161	29,805,367	15,770,581	3,994,192	4,706,734	6,052,670	8,218,856	6,743,314	8,013,379	6,118,303
All Other North and Central America	352,793	377,545	648,701	342,490	831,984	2,041,556	2,902,907	4,070,539	3,893,703	2,342,739	2,336,306	1,812,649
South America	476,071	1,027,104	1,690,849	656,992	4,424,132	3,681,161	4,313,313	8,951,945	13,784,469	8,967,120	5,367,279	1,963,948
Japan	18,063,085	14,798,533	162,174						137,010	72,207	43,956	178,018
All Other Asia	2,662,602	1,432,092	39,383,522	4,138 166	6,722,170	7,180,524	2,210,113	3,357,220	8,186,094	4,529,586	5,355,284	2,250,571
Oceania	538,140	4,055,689	5,907,428	12,634,105	17,704,485	1,472,925	536,400	385,842	3,395,267	1,121,707	1,102,687	757,921
Africa	239,369	1,077,542	2,262,611	2,556,816	3,016,273	3,560,855	1,704,048	2,198,031	2,631,610	1,939,677	1,138,020	396,496
Grand Total	79,818,943	185,717,037	166,533,436	157,534,358	237,121,792	163,599,140	78,486,867	110,035,671	105,328,177	62,806,037	72,620,513	49,957,177**

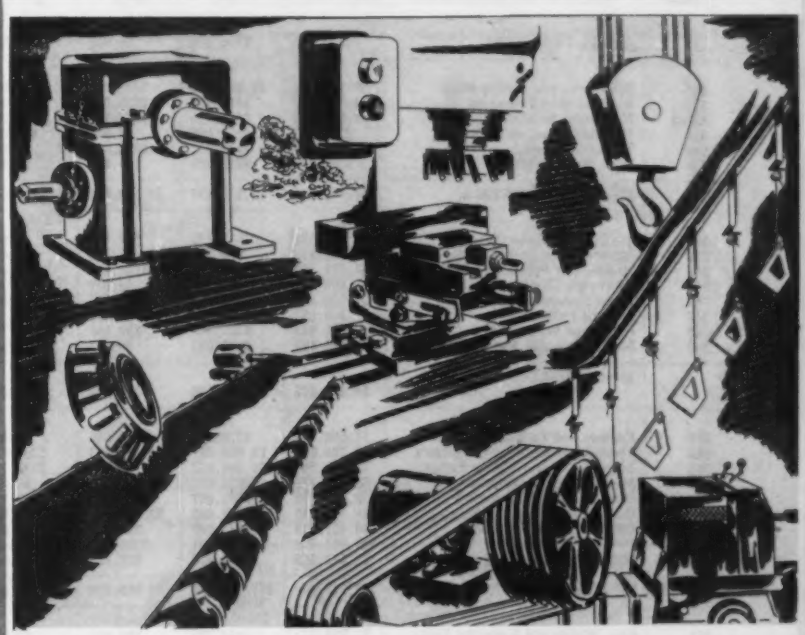
* Nine months. **Includes $146,966 destination not available

Source: National Machine Tool Builders Assn.

THE IRON AGE 7 SECTION

METAL INDUSTRY FACTS

Market and Product Research Data



IN THIS SECTION:

Page

BELTING 352

BUFFING DEPTS. IN PLANTS 356

CLEANING, METAL—IN PLANTS 356

CUTTING TOOLS
- Types used
  - Future 355
  - Present 355
- Usage of carbide tips 355

DEGREASING, METAL—IN PLANTS 356

ELECTROPLATING DEPTS. IN PLANTS 356

EXTRUDED RUBBER 352

GALVANIZING DEPTS. IN PLANTS 356

HOSE, RUBBER 352

INDUCTION HEATING 355

LACQUERING, IN PLANTS .. 356

MARKET RESEARCH
- Cutting tools 355
- Induction heating 355
- Materials handling eqpt. 353
- Methods of scale removal 354, 355
- Power transmission eqpt. 353
- Rubber goods, mechanical 352
- Sources of data 353

MATERIALS HANDLING EQPT.
- Future usage 353
- Present usage 353
- Who selects eqpt. 353

METALWORKING INDUSTRY
- Purchases
  - Plastics 354
  - Rubber goods, mechanical 352
- Usage of
  - Cutting tools 355
  - Induction heating 355
  - Materials handling eqpt. 353
  - Power transmission eqpt. 353
  - Scale removal methods 354, 355

MOLDED RUBBER 352

PAINTING SHOPS IN PLANTS 356

PICKLING, METAL—IN PLANTS 356

PLASTICS
- Future usage 354
- Present usage 354
- Purchases by metalworking 354

POLISHING, METAL—IN PLANTS 356

POWER TRANSMISSION EQPT.
- Future usage 353
- Present usage 353
- Who selects eqpt. 353

PURCHASES
- Plastics 354
- Rubber goods, mechanical 352

RUBBER GOODS, MECHANICAL
- Purchases by metalworking 352

SAND BLASTING, IN PLANTS 356

SCALE REMOVAL, METHODS USED 354, 355

SHEET RUBBER 352

SHOPS IN PLANTS, NO. OF
- Buffing 356
- Cleaning 356
- Degreasing 356
- Finishing 356
- Galvanizing 356
- Lacquering 356
- Painting 356
- Pickling 356
- Polishing 356
- Sand blasting 356
- Testing, physical 356
- Tinning 356
- Washing 356

TESTING, PHYSICAL—IN PLANTS 356

TINNING, IN PLANTS 356

USAGE OF EQUIPMENT, MATERIALS, PROCESSES
- Cutting tools 355
- Induction heating 355
- Materials handling 353
- Plastics 354
- Power transmission 353
- Rubber goods, mechanical 352

WASHING, METAL—IN PLANTS 356

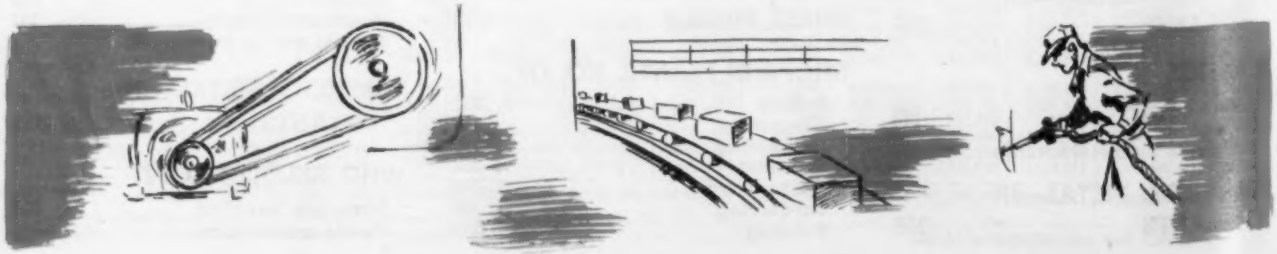
WHO SELECTS EQPT.
- Materials handling 353
- Power transmission 353

MECHANICAL RUBBER GOODS

Use By the Metalworking Industry in 1950*

Govt. Ind. Code	Description of Industry Groups	Total Mechanical Rubber Goods	Hose	Conveyer Belts	Flat Belts	Rubber V-Belts	Molded and Extruded Rubber	Sheet Rubber	Other Mechanical Rubber	Un-Itemized Purchases, not Expanded
25	METAL FURNITURE	$570,555	$103,968	$6,632	$4,236	$26,604	$408,109	$3,741	$12,315	$4,950
331	Steelworks and Rolling Mills	$2,709,021	$1,041,353	$738,024	$89,089	$421,016	$41,424	$136,901	$241,214	
332	Iron and Steel Foundries	$1,575,747	$357,145	$728,048	$67,354	$159,605	$37,472	$49,577	$18,498	$158,050
333-4	Nonferrous Smelting	$1,621,035	$236,793	$987,991	$41,290	$73,456	$28,287	$103,570	$149,648	
335	Nonferrous Rolling Mills	$242,091	$126,525	$4,981	$10,959	$29,888	$45,828	$11,955	$11,955	
336	Nonferrous Foundries	$453,799	$127,917	$278,433	$6,396	$21,319	$7,675	$3,837	$6,822	$1,400
339	Misc. Primary Metal	$498,809	$222,669	$11,494	$3,430	$110,480	$23,513	$25,313	$96,910	$5,000
	33—PRIMARY METALS	$7,100,502	$2,112,402	$2,748,971	$218,518	$815,764	$184,199	$331,153	$525,045	$164,450
341	Tin Cans and Tinware	$118,571	$13,270	$17,122	$5,565	$14,126	$42,377	$10,701	$15,410	
342	Cutlery, Hand Tools and Hardware	$542,676	$75,708	$41,283	$16,016	$62,954	$156,837	$15,506	$19,822	$154,550
343	Heating and Plumbing Equip.	$1,774,151	$238,992	$114,699	$10,569	$397,181	$639,575	$19,359	$352,076	$1,700
344	Fabricated Structural Products	$1,806,141	$773,220	$46,633	$7,094	$188,563	$173,161	$403,316	$198,529	$15,625
346	Metal Stamping	$1,400,222	$240,097	$49,295	$20,613	$91,150	$770,464	$123,861	$103,842	$900
347	Lighting Fixtures	$43,580	$8,269	$4,693		$8,269	$16,762	$5,587		
348	Fabricated Wire Products	$518,644	$103,541	$30,197	$139,720	$64,001	$180,284	$901		
349	Misc. Fabricated Metal Products	$350,857	$100,033	$9,127	$1,505	$44,617	$117,963	$3,232	$74,380	
	34—FABRICATED METAL PRODUCTS	$8,554,842	$1,553,130	$313,049	$201,082	$870,861	$2,097,423	$582,463	$764,059	$172,775
351	Engines and Turbines	$1,094,119	$222,091	$25,606	$485	$58,561	$312,093	$9,232	$466,071	
352	Agricultural Machy. and Tractors	$11,198,563	$2,005,257	$3,317,951	$209,505	$4,033,520	$1,084,694	$38,249	$374,348	$135,039
353	Construction and Mining Equipt.	$4,322,268	$1,264,958	$1,189,878	$169,133	$675,695	$473,511	$139,500	$196,613	$213,000
354	Metalworking Machinery	$1,711,119	$663,999	$78,339	$5,201	$423,082	$78,090	$38,643	$385,965	$37,800
355	Special Industry Machinery	$2,912,245	$393,067	$467,444	$212,172	$695,011	$852,881	$74,447	$203,723	$13,500
356	General Industrial Machinery	$6,777,610	$958,945	$2,538,854	$6,543	$1,189,986	$1,522,112	$143,101	$193,069	$225,000
357	Office and Store Machines	$5,537,719	$41,499	$24,089	$2,472	$34,742	$3,505,227	$1,835,829	$43,861	$90,000
358	Household Machines	$21,463,016	$5,516,601	$483,514	$81,430	$3,061,154	$11,762,692	$133,025	$294,600	$130,000
359	Misc. Machinery Parts	$2,597,363	$444,944	$78,121	$3,587	$221,759	$1,701,214	$78,291	$58,647	$800
	35—MACHINERY	$57,614,042	$11,511,361	$8,203,796	$690,508	$10,393,510	$21,292,514	$2,490,317	$2,226,897	$808,139
361	Elec. Wiring and Industrial Equip.	$3,664,072	$247,484	$92,815	$2,334	$116,564	$2,964,582	$120,511	$119,282	$800
362	Elec. Appliances, Not Elsewhere Classified	$255,295	$6,577		$41,852	$14,947	$172,189		$19,730	
364	Elec. Equipment For Transportation Equipment	$722,515	$87,802			$62,807	$448,623	$22,431	$100,852	
366	Communication Equipment	$2,081,371	$252,745	$6,901	$89,711	$93,516	$1,015,356	$477,012	$146,130	
369	Misc. Electrical Products	$71,598	$22,753			$9,809	$11,401	$13,902	$13,733	
	36—ELECTRICAL EQUIPMENT	$6,794,851	$617,361	$99,716	$133,897	$297,643	$4,612,151	$633,856	$399,727	$800
3714-16	Motor Vehicle Parts and Trailers	$4,573,628	$566,845	$320,960	$7,378	$446,547	$2,090,309	$97,147	$1,032,442	$12,000
372	Aircraft and Parts	$3,370,991	$608,025		$2,566	$110,671	$1,118,221	$616,290	$815,218	$100,000
373	Shipbuilding	$1,523,006	$570,300	$99,390		$59,938	$245,606	$316,705	$231,065	
374	Railroad Equipment	$2,229,018	$672,786	$15,162		$734,983	$464,826	$22,743	$318,518	
375	Motorcycles and Bicycles	$108,043	$3,230			$4,307	$100,506			
	37—TRANSPORTATION EQUIPMENT	$11,804,686	$2,421,188	$435,512	$9,944	$1,356,446	$4,019,470	$1,052,885	$2,397,243	$112,000
381-2	Mech. Control Instruments	$1,571,677	$105,658	$1,682		$9,250	$1,303,488	$44,991	$94,608	$12,000
383-7	Other Instruments	$370,555	$66,072	$605	$25,759	$86,668	$117,132	$31,602	$42,717	
	38—INSTRUMENTS	$1,942,232	$171,730	$2,287	$25,759	$95,918	$1,420,620	$76,593	$137,325	$12,000
391-6	Jewelry and Silverware	$119,080	$43,158	$4,149	$2,074	$62,261		$6,351		$1,087
3943	Children's Vehicles	$1,509,667	$3,203			$2,916	$1,504,448			
39 BAL.	Balance of 39 Group	$312,458	$36,244			$24,173	$183,846	$21,000	$46,945	$250
	39—MISC. MFG. (METAL)	$1,941,205	$82,605	$4,149	$2,074	$88,450	$1,688,294	$27,351	$46,945	$1,337
	Purchases of Metalworking Industry, Based on Expansion of the Sample	$94,322,915	$18,573,743	$11,814,112	$1,286,018	$13,945,196	$35,722,780	$5,198,359	$8,509,556	$1,273,151

*Exclusive of manufacturers of motor vehicles and bodies



Present Trend and Future Use of Power Transmission and Materials Handling Equipment, Who Selects Equipment.

METAL FACTS SECTION 7

POWER TRANSMISSION

Present Use and Future Trend*

Power Transmission Items	No. Now Using	Pct. Now Using	No. Answering Trend Question	Will Increase Use	Pct. Increasing	Will Decrease Use	Pct. Decreasing	Will Use Same Amt.	Pct. Will Use Same Amt.	Reason For Increasing Use		Reason For Decreasing Use	
										Change In Production	Change In Design	Change In Production	Change In Design
Ball Bearings	359	91.8	265	186	70.2	37	14.0	42	15.8	76	117	20	20
Roller Bearings	284	72.6	198	123	62.1	36	18.2	39	19.7	46	98	17	23
Needle Bearings	190	48.6	133	85	63.9	29	21.8	19	14.3	32	64	8	20
Flat Leather Belting	48	12.3	32	2	6.3	24	75.0	6	18.7	1	1	7	15
Flat Rubber Belting	61	15.6	43	19	44.2	16	37.2	8	18.6	12	10	6	9
V-Belts	322	82.4	221	139	62.9	37	16.7	45	20.4	76	84	14	22
Roller Chain Drives	223	57.0	149	82	55.0	33	22.1	34	22.9	42	47	9	25
Silent Chain Drives	84	21.5	51	19	37.3	21	41.2	11	21.5	7	14	6	16
Variable Speed Reducers	117	29.9	76	50	65.8	9	11.8	17	22.4	22	32	4	6
Hydraulic Transmissions	67	17.1	47	36	76.6	7	14.9	4	8.5	11	30	2	5
Gear Reducers	184	47.1	111	63	56.8	21	18.9	27	24.3	33	41	8	9
Shims	186	47.6	114	66	57.9	17	14.9	31	27.2	45	26	8	10
Electric Controls	264	67.5	174	118	67.8	13	7.5	43	24.7	63	64	11	5
Electronic Controls	84	21.5	56	47	83.9	2	3.6	7	12.5	16	41	0	2
Hydraulic Controls	159	40.7	100	75	75.0	10	10.0	15	15.0	32	58	4	3
Clutches	214	54.7	132	75	56.8	24	18.2	33	25.0	30	46	11	14
Flexible Couplings	241	61.6	152	84	55.3	26	17.1	42	27.6	46	54	12	14
Oil Seals	315	80.6	215	145	67.4	23	10.7	47	21.9	77	97	13	11

*Based on a questionnaire answered by 391 machinery manufacturers.

POWER TRANSMISSION

Who Selects Equipment*

Titles of Men Selecting the Types	No. Men Selecting Types
Chief Engineers	273
Design Engineers	212
Engineers (No prefix)	72
Various Other Engineers	48
Plant Superintendents	31
Works Managers	24
Production Managers	18
Foremen	4
Purchasing Executives	149
Top Administrative Executives	71
Sales Executives	12
Total in 370 Plants	914

* Based on survey of 370 plants.

MARKET RESEARCH SOURCES

The 1950 edition of "Market Research Sources," a reference guide for those engaged in marketing and market analysis, has just been published by the Office of Industry & Commerce, U. S. Dept. of Commerce. Designed as an aid to market research projects, the 264-p. book is also a national inventory of available market research material, the ninth in a series interrupted by World War II.

Since the last edition appeared in 1940, the present work attempts to bridge the entire 10-year period. However, since this period is so long, emphasis was placed mainly upon postwar materials. Information for the book was obtained through questionnaires sent to all organizations thought to be engaged in market research. Available from Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., $2.25.

MATERIALS HANDLING

Present and Future Use of Equipment*

Type of Materials Handling Equipment	No. Plants Now Using	Pct. Of Plants Now Using	No. Plants Will Buy In Next 12 Months	Didn't Answer The Buy Question	No. Plants That Will Buy More Than in '49	No. Plants That Will Buy Less Than in '49	No. Plants Will Buy Same Amt. As '49
Electric Industrial Trucks	273	66	87	26	33	37	4
Straight Gas Ind. Trucks	274	66	80	25	39	26	2
Gravity Conveyors	246	59	99	28	41	41	1
Power Roller Conveyors	115	28	35	14	17	13	1
Overhead Conveyors	193	47	62	20	32	19	1
Portable Conveyors	162	39	43	21	21	16	2
Belt Conveyors	203	49	65	25	28	20	2
Chain Conveyors	137	33	35	18	14	15	2
Apron Conveyors	63	15	14	9	9	5	...
Electric Hoists	393	95	172	37	50	89	6
Air Hoists	204	49	82	31	15	34	2
Chain Hoists	344	83	84	51	13	46	6
Overhead Travel Cranes	312	75	55	37	30	16	1
Yard Crawler Cranes	72	17	7	2	3	1	...
Yard Tractor Cranes	81	20	8	9	2	2	1
Yard Truck-Mounted Cranes	48	12	3	3	1	1	...
Lifting Magnets	128	31	23	16	11	4	2
Pallets	282	68	157	26	71	57	5
Storage Batteries	247	60	141	20	38	77	7

*Based on a questionnaire answered by 415 plants.

MATERIALS HANDLING

Who Selects Equipment*

Titles of Men Selecting the Types	No. Men Selecting Types
Plant Engineers (& Maintenance)	171
Mfg. Engineering Including Master Mechanics, Methods & Planning Engineers. Equipment Engineers & Equipment Supervisors.	123
Chief Engineers	46
Industrial & Mechanical Engineers	27
Other Engineers	22
Works Managers	122
Plant Superintendents	91
Production Managers	42
Dept. Supts., & General Foremen	38
Purchasing Executives	131
Top Administrative Executives	105
Materials Handling Engineers, Traffic Mgrs.	35
Transportation Supts.	
Total in 346 Plants	953

* Based on survey of 346 plants.

ABOUT THESE SURVEYS

The data in these market studies were compiled by THE IRON AGE from information received from representative metalworking companies — IRON AGE subscribers. In the surveys where quantities reported in the field sample were expanded to yield an industry estimate, expansion factors were used for the various industry groups. The factors were arrived at by dividing the number of production workers in the industry by the number of production workers in reporting plants.

7 METAL FACTS SECTION

Use of Plastics by the Metalworking Industry.
Future Trend in Plastics Use.
Scale Removal Survey.

PLASTICS

Use By Whole Metalworking Industry

Govt. Ind. Code	Description Of Industry Groups	Total Plastics Used in 1949	Molded Plastics Used	Extruded Plastics Used	Laminated Plastics Used
19	Ordnance	$ 820,249	$ 816,876	$ 3,373	.....
25	Metal Furniture	3,031,690	348,200	140,590	$ 2,542,900
342	Cutlery, Hand Tools, Hardware	4,679,802	4,366,129	261,557	52,116
343	Heating Equip., Plumbers Sup.	5,055,290	5,042,274	.....	13,016
346	Stampings, (Commercial)	2,057,325	1,977,650	.....	79,675
347	Lighting Fixtures	1,352,102	784,770	547,661	19,671
351	Engines & Turbines	98,284	24,514	228	73,542
352	Agricultural Mchry., Tractors	186,572	16,189	6,167	164,216
353	Construction & Mining Equip.	284,806	235,908	371	48,527
354	Metal-Working Machinery	454,371	230,238	521	223,612
355	Special-Industry Machinery	627,644	372,995	73,093	181,556
356	General Industrial Machinery	409,545	282,408	8,578	118,559
357	Office & Store Machines	7,423,117	6,739,570	478,772	204,775
358	Household Machines	69,133,089	41,075,714	7,992,515	20,064,860
359	Valves, Ball Bearings	259,510	186,112	5,557	67,841
361	Elec. Trans. & Indust'l. Equip.	32,780,444	26,559,919	157,579	6,062,946
362	Elec. Appliances, Not Elsewhere Classified	5,997,826	5,990,667	2,386	4,773
363	Insulated Wire & Cable	3,596,320	.....	3,596,320	.....
364	Elec. Equip. for Transportation	3,671,881	2,623,152	46,451	1,202,278
365	Electric Lamp Bulbs & Tubes	440,000	440,000	.....	.....
366	Communication Equipment	30,141,427	24,462,274	1,491,220	4,187,933
369	Batteries & X-Ray	296,553	291,090	3,358	2,105
371	Motor Vehicles & Parts, Estimated	27,700,000	18,900,000	5,022,000	3,078,000
372	Aircraft & Parts	8,746,144	1,534,417	239,354	4,972,373
374	Railroad Cars	298,470	100,000	.....	198,470
38	Instruments, Photographic Equip.	7,933,916	6,880,688	318,270	754,958
39	Misc. Toys, Pencils, Musical Instr.	9,040,501	7,616,625	1,217,450	206,426
	Metalworking Industry	224,016,878	157,878,379	21,613,371	44,525,128

Based on expansion of a sample survey covering 424 metalworking plants that use plastics.

PLASTICS

Use of Molded Types

Govt. Ind. Code	Description of Industry Groups	Buy 100 Pct. of Their Molded Plastics		Mold 100 Pct. of Their Molded Plastics		Buy and Mold Molded Plastics		
		No. Plants	Value Bought	No. Plants	Value Molded	No. Plants	Value Bought	Value Molded
19	Ordnance	6	$ 788,481	..	.....	..	.....	.....
25	Metal Furniture	8	72,000	..	.....	..	.....	.....
34	Fabricated Metal Prods.	67	2,190,214	6	$ 104,838	3	$ 58,903	$ 66,849
35	Machinery Mfrs.	120	3,777,398	2	130,000	8	3,019,509	5,442,063
36	Electrical Equip.	64	6,785,650	13	1,408,100	20	1,336,725	4,357,875
37*	Transportation Equip.	13	225,976	1	100,000	4	3,580	980
38	Instruments, Photographic Equip.	11	1,041,500	1	350,000	5	32,800	148,200
39	Misc. Metal Products	10	320,500	1	200,000	4	152,070	1,311,430
	Reporting Metalworking Plants	299	15,201,719	24	2,292,938	44	4,603,587	11,327,397
	Pct. of Total Plants	81	45	7	7	12	14	34

* Not including automotive industry.

PLASTICS

Future Trend In Use

Govt. Ind. Code	Description of Industry Groups	Plastics Used In 1949 By 409 Plants	No. Plants That Will Use			Increase In Use Of Plastics	Decrease In Use Of Plastics	Net Increase In Use Of Plastics
			Same Amt.	More Plastics	Less Plastics			
19	Ordnance	$ 790,395	8	....	....	.....	.....	.....
25	Metal Furniture	2,421,420	11	4	1	$ 303,250	$ 5,250	$ 298,000
34	Fabricated Metal Prods.	2,483,283	43	27	4	194,080	3,813	190,267
35	Machinery Mfrs.	19,281,049	104	54	....	1,878,259	.....	1,878,259
36	Electrical Equip.	20,034,555	48	54	3	1,321,388	62,300	1,259,088
37*	Transportation Equip.	2,691,586	11	7	1	124,400	18,600	105,800
38	Instruments, Photographic Equipment	1,913,050	8	6	3	129,810	93,750	36,060
39	Misc. Metal Products	2,232,000	6	8	2	107,750	30,000	77,750
	Reporting Metalworking Plants	51,897,338	237	156	14	4,058,937	213,713	3,845,224
	Pct. of Total Plants	.....	58	39	3	7.8	.4	7.4

*Not including automotive industry.

SCALE REMOVAL

Question 1. *"Do you consider furnace scale detrimental to your dies and to the appearance of your product?"*

135 Forge shops (92 pct) consider furnace scale detrimental.
11 Forge shops (8 pct) do not consider it detrimental.

146 Total replies.

Seven of the 11 forge shops that do not consider furnace scale detrimental reported that none of their work could be classed as fairly long-run production jobs. One additional shop has only 10 pct of its work in the long-run production category.

Question 2. *"How do you remove scale from heated forging bars and billets?"*

Method of Scale Removal	Number of Plants Using. (Some Use Two Methods.)
Compressed Air	29
Wire Brushes	10
Breakdown Dies	8
High Pressure Water	7
Water Spray	7
Hammer Blows	6
Steam Pressure	5
Edging or Fullering	5
Scraping Bars	4
Salt and Water	2
Roller Descalers	2
Chain Descaler	1
Mechanical Descaler	1
Number of shops reporting above	79
* Do Not Remove Scale	23
Did Not Answer	12
**Answered Other Than Above	32
Total Replies	146

* Nine of the 23 shops that do not remove scale are users of induction heat. But as very few forge shops are 100 pct equipped with induction heat, it can be assumed that these 9 shops answered the question in the light of their more important jobs. Then there are the 11 shops that reported in Question 1, that furnace scale is not detrimental. Thus it would seem that some attempt at descaling is made in most forge shops that use closed dies, excepting that portion of the production which is induction heated.

** These 32 forge shops answered the scale removal question by mentioning operations such as sand and shot blasting, pickling, tumbling, grinding, etc., which indicates they were thinking of cleaning operations on the forgings rather than of the removal of furnace scale from the heated billets.

FROM FORGING BARS AND BILLETS

To collect some information on how scale is removed from heated forging bars and billets prior to the actual forging operation, a questionnaire was sent to a cross-section of commercial forge shops and captive forging departments attached to manufacturing plants. The following report is based on 146 replies.

CUTTING TOOLS

Amount and Trend of Carbide Tool Use*

Type of Cutting Tool	No. Plants Using Each Type	No. Plants Using Carbide Tips	Pct. Using Carbide Tips	No. Plants Will Use More Carbide	No. Plants Will Use Less Carbide	No. Plants Will Use Same Amount
Milling Cutters, Solid	217	97	44.7	71	4	22
Milling Cutters, Inserted Tooth	201	168	83.6	143	4	21
End Mills	206	79	38.0	63	2	14
Hollow Mills	137	39	28.5	27	3	9
Counterbores	208	103	49.5	80	3	20
Spot Facers	202	98	48.5	79	5	14
Reamers	236	139	58.9	110	3	26
Twist Drills	227	50	22.0	38	3	9
Boring Tools, Multi-point	170	138	81.2	107	1	30
Single Point Tools	248	226	91.1	187	5	34
Diamond Cutting Tools	47	.....	.....	.....	.....	.....
Form Tools	196	109	55.6	88	2	19
Gear Cutters	114	5	4.4	4	0	1
Broaches	149	10	6.7	7	1	2
Taps	212	5	2.4	3	0	2
Threading Chasers	177	3	1.7	2	0	1
Cold Saws	149	7	4.7	5	0	2
Band Saws	165	.....	.....	.....	.....	.....
Stamping Dies (Blanking)	187	26	13.9	22	1	3

*Based on a questionnaire answered by 278 plants.

CUTTING TOOLS

Industry Groups Surveyed

Govt. Standard Industry Code	Industry Groups	No. Responses	No. Workers In Respondent Plants	Total Workers In Groups Surveyed	Pct. Coverage By Survey Sample
34	Fabricated Metal Products	29	16,731	264,400	6.3
35	Machinery Mfrs.	163	178,810	1,068,864	16.7
36	Electrical Equipment	34	86,072	584,909	14.7
37	Transportation Equipment	52	144,410	818,083	17.6
	Totals	278	426,023	2,736,256	15.6

Question 3. *"Suppose that you could pass your heated forging stock through a water-tight chamber containing high pressure nozzles for descaling. Would such a hydraulic descaling chamber be a helpful device for forge shops?"*

It would be helpful	59	..	40.4 pct
It would not be helpful.	71	..	48.6 pct
Don't know	16	..	11.0 pct
No. plants reporting	146	..	100.0 pct

Four of the 59 forge shops are now using such a high pressure hydraulic descaling chamber.

Question 4. *"Do you use induction heat for heating forging stock?"*

Now using induction heat.	19	..	13 pct
Do not use induction heat.	127	..	87 pct
No. plants reporting	146	..	100 pct

Question 5. *"If you use induction heat, what percent of your output is induction heated?"*

Pct of Output Induction Heated	No. Plants Using Induction Heat
1 to 10	5
11 to 25	4
26 to 50	3
51 to 75	1
76 to 100	3
Didn't state	3
Number using	19

Question 6. *"Do you plan to increase your use of induction heat in the future? If so, to what percent of output?"*

	Present pct of Output Induction Heated	Will Increase The Use of Induction Heat to pct Below
1 Shop	5	100
1 Shop	10	70
1 Shop	50	75
1 Shop	70	100
2 Shops	20	?
2 Shops	7	?

8 will increase their use of induction heat.
8 will not increase their use of induction heat.
2 already at 100 pct use of induction heat.
1 undecided.

19 Shops reporting use of induction heat.

Question 7. *"If you are not using induction heat now, do you think you will use it later?"*

Will use induction heat later for first time	30	..	23.7 pct
Will not use induction heat in future	70	..	55.1 pct
Didn't answer this question	27	..	21.2 pct
No. reporting shops not using at present	127	..	100.0 pct

Question 8. *"What percent of your forging output can be classed as fairly long-run production jobs?"*

Pct of Output classed as Long-run Production	No. Plants Reporting
1 to 10	19
11 to 25	15
26 to 50	29
51 to 75	19
76 to 100	30
None	34
No. Plants reporting	146

Question 9. *"Would you consider the installation of a completely engineered high pressure hydraulic descaling system?"*

Yes	45
No	82
Didn't answer	15
Already use it	4
No. Plants reporting	146

In most forge shops where induction heat is used, it is used for a certain percentage of the forging output as shown in Question 5.

7 METAL FACTS SECTION

Metal Washing or Degreasing, Galvanizing or Tinning, Pickling, Sand Blasting, Electroplating, Painting and Lacquering, Polishing or Buffing and Physical Testing.

METAL CLEANING, FINISHING AND TESTING

Departments Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

WASHING OR DEGREASING

Alabama	25	Nebraska	24
Arizona	1	Nevada	
Arkansas	5	New Hampshire	20
California	353	New Jersey	272
Colorado	19	New Mexico	
Connecticut	253	New York	626
Delaware	6	North Carolina	18
District of Columbia	3	North Dakota	
Florida	14	Ohio	653
Georgia	38	Oklahoma	20
Idaho	3	Oregon	19
Illinois	697	Pennsylvania	429
Indiana	230	Rhode Island	101
Iowa	77	South Carolina	4
Kansas	31	South Dakota	1
Kentucky	35	Tennessee	36
Louisiana	14	Texas	84
Maine	5	Utah	2
Maryland	58	Vermont	8
Massachusetts	288	Virginia	17
Michigan	528	Washington	19
Minnesota	91	West Virginia	18
Mississippi	6	Wisconsin	204
Missouri	127	Wyoming	1
Montana	1	Total	5,454

SAND BLASTING

Alabama	33	Nebraska	20
Arizona	3	Nevada	1
Arkansas	2	New Hampshire	17
California	208	New Jersey	154
Colorado	18	New Mexico	1
Connecticut	130	New York	95
Delaware	11	North Carolina	
District of Columbia	1	North Dakota	
Florida	13	Ohio	475
Georgia	25	Oklahoma	16
Idaho	2	Oregon	25
Illinois	350	Pennsylvania	419
Indiana	165	Rhode Island	30
Iowa	59	South Carolina	5
Kansas	22	South Dakota	1
Kentucky	22	Tennessee	40
Louisiana	16	Texas	72
Maine	13	Utah	10
Maryland	36	Vermont	10
Massachusetts	201	Virginia	20
Michigan	341	Washington	36
Minnesota	51	West Virginia	19
Mississippi	3	Wisconsin	146
Missouri	90	Wyoming	1
Montana	2	Total	3648

GALVANIZING OR TINNING

Alabama	12	Nebraska	6
Arizona	1	Nevada	
Arkansas		New Hampshire	3
California	63	New Jersey	42
Colorado	3	New Mexico	
Connecticut	36	New York	77
Delaware	1	North Carolina	4
District of Columbia	1	North Dakota	
Florida	5	Ohio	118
Georgia	8	Oklahoma	3
Idaho	1	Oregon	1
Illinois	81	Pennsylvania	104
Indiana	38	Rhode Island	9
Iowa	17	South Carolina	
Kansas		South Dakota	
Kentucky	7	Tennessee	8
Louisiana	4	Texas	13
Maine	4	Utah	1
Maryland	20	Vermont	
Massachusetts	63	Virginia	3
Michigan	58	Washington	6
Minnesota	18	West Virginia	7
Mississippi	3	Wisconsin	61
Missouri	30	Wyoming	1
Montana		Total	918

PICKLING

Alabama	16	Nebraska	7
Arizona	1	Nevada	
Arkansas	2	New Hampshire	7
California	156	New Jersey	136
Colorado	8	New Mexico	
Connecticut	157	New York	283
Delaware	3	North Carolina	7
District of Columbia	4	North Dakota	
Florida	5	Ohio	296
Georgia	13	Oklahoma	6
Idaho	1	Oregon	7
Illinois	246	Pennsylvania	288
Indiana	105	Rhode Island	81
Iowa	24	South Carolina	1
Kansas	7	South Dakota	
Kentucky	18	Tennessee	27
Louisiana	3	Texas	24
Maine	3	Utah	2
Maryland	25	Vermont	2
Massachusetts	177	Virginia	8
Michigan	201	Washington	16
Minnesota	25	West Virginia	14
Mississippi	1	Wisconsin	74
Missouri	61	Wyoming	2
Montana		Total	2550



PHYSICAL TESTING

Alabama	16	Nebraska	
Arizona		Nevada	
Arkansas	1	New Hampshire	9
California	138	New Jersey	137
Colorado	11	New Mexico	
Connecticut	93	New York	242
Delaware	8	North Carolina	6
District of Columbia	2	North Dakota	
Florida	4	Ohio	312
Georgia	11	Oklahoma	9
Idaho		Oregon	5
Illinois	280	Pennsylvania	257
Indiana	102	Rhode Island	16
Iowa	29	South Carolina	1
Kansas	14	South Dakota	2
Kentucky	17	Tennessee	20
Louisiana	5	Texas	28
Maine	5	Utah	4
Maryland	25	Vermont	2
Massachusetts	113	Virginia	9
Michigan	197	Washington	18
Minnesota	32	West Virginia	9
Mississippi	3	Wisconsin	91
Missouri	54	Wyoming	
Montana	3	Total	2346

ELECTROPLATING

Alabama	6	Nebraska	9
Arizona		Nevada	1
Arkansas	3	New Hampshire	14
California	144	New Jersey	166
Colorado	10	New Mexico	
Connecticut	157	New York	352
Delaware	2	North Carolina	6
District of Columbia	4	North Dakota	
Florida	5	Ohio	292
Georgia	21	Oklahoma	8
Idaho	2	Oregon	2
Illinois	269	Pennsylvania	210
Indiana	114	Rhode Island	72
Iowa	30	South Carolina	1
Kansas	8	South Dakota	
Kentucky	14	Tennessee	10
Louisiana	1	Texas	17
Maine	3	Utah	3
Maryland	22	Vermont	3
Massachusetts	175	Virginia	15
Michigan	221	Washington	9
Minnesota	38	West Virginia	11
Mississippi	..	Wisconsin	82
Missouri	56	Wyoming	2
Montana	..	Total	2638

PAINTING AND LACQUERING

Alabama	50	Nebraska	41
Arizona	3	Nevada	..
Arkansas	13	New Hampshire	28
California	551	New Jersey	391
Colorado	37	New Mexico	1
Connecticut	265	New York	860
Delaware	11	North Carolina	44
District of Columbia	8	North Dakota	1
Florida	38	Ohio	904
Georgia	68	Oklahoma	46
Idaho	4	Oregon	45
Illinois	980	Pennsylvania	661
Indiana	324	Rhode Island	101
Iowa	126	South Carolina	5
Kansas	62	South Dakota	5
Kentucky	56	Tennessee	68
Louisiana	21	Texas	128
Maine	19	Utah	13
Maryland	83	Vermont	14
Massachusetts	394	Virginia	43
Michigan	628	Washington	50
Minnesota	151	West Virginia	38
Mississippi	12	Wisconsin	319
Missouri	206	Wyoming	2
Montana	3	Total	7895

POLISHING OR BUFFING

Alabama	20	Nebraska	18
Arizona	1	Nevada	1
Arkansas	5	New Hampshire	28
California	285	New Jersey	292
Colorado	23	New Mexico	
Connecticut	279	New York	689
Delaware	6	North Carolina	24
District of Columbia	4	North Dakota	1
Florida	15	Ohio	966
Georgia	39	Oklahoma	9
Idaho	1	Oregon	25
Illinois	545	Pennsylvania	83
Indiana	190	Rhode Island	107
Iowa	66	South Carolina	3
Kansas	25	South Dakota	1
Kentucky	42	Tennessee	31
Louisiana	7	Texas	83
Maine	12	Utah	4
Maryland	42	Vermont	11
Massachusetts	328	Virginia	22
Michigan	392	Washington	25
Minnesota	75	West Virginia	17
Mississippi	3	Wisconsin	183
Missouri	120	Wyoming	2
Montana	..	Total	5,008

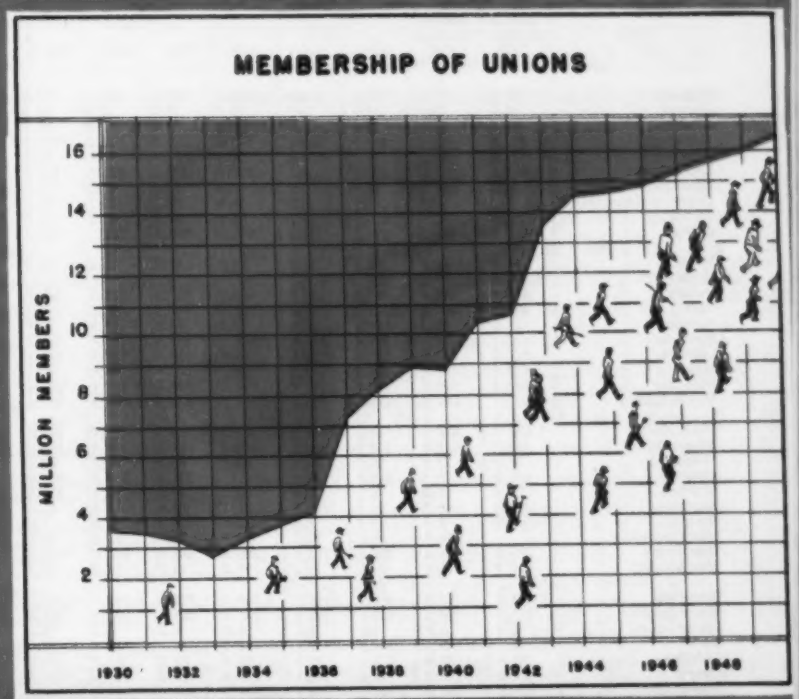
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THE IRON AGE

SECTION 8

METAL INDUSTRY FACTS

Labor, Safety



IN THIS SECTION:

Page

EARNINGS

Aluminum 363
Coke & byproducts 362
Durable goods 359
Iron mining 362
Metal mining 358
Metal products 358
Metalworking machinery 363
Spendable weekly 363
Transportation 363

EMPLOYMENT

Aluminum refining 363
By selected industries 359
Coke and byproducts 362
Durable goods 358
Electrical machinery 360
Federal civilian 361
Metal mining 358
Metal products 358
Metalworking 360
Mfg., all types 361
Mfg., by states 358
Transportation 363
U. S. labor force 359

FEDERAL EMPLOYEES

Executive 361
Legislative 361
Payrolls 361
Workers 361

HOURS, AVG. WEEKLY

Electrical machinery 360
Metalworking machinery 360
Transportation 363

PRICE INDEX

Consumer goods, large cities ... 361

Page

PRODUCTIVITY, MINING ... 362

SAFETY

Accidents 363
Deaths, by industry 363
Death rates, occupational 363
Injuries, by industry 362
Injury rate changes 364
Unsafe acts 364

UNEMPLOYMENT

Time lost, strikes 360

UNION MEMBERSHIP 358

WAGES

All manufacturing 361

WORK STOPPAGES 360

8 METAL FACTS SECTION

Employment in Manufacturing Industries; Membership of Unions; Earnings, Metal Products, Metal Mining and Durable Goods

EMPLOYEES, MANUFACTURING BY STATES

Annual Averages for 1947 and 1949. Monthly Averages Thru August 1950 (In Thousands)

State	Annual Average 1947	Annual Average 1949	1950 Aug.	July	June	May	April	March	Feb.	Jan.
Alabama	224.1	205.4	223.3	212.0	208.8	206.2	205.0	205.0	204.3	207.2
Arizona	14.2	14.9	16.2	15.9	15.7	15.6	15.5	14.8	14.5	14.5
Arkansas	75.1	69.3	78.0	71.5	72.3	71.1	68.9	67.7	65.6	66.1
California	712.0	713.7	843.3	763.9	734.6	722.0	712.7	*697.4	684.0	683.0
Colorado	57.5	54.0	62.7	56.9	54.3	53.4	53.4	52.5	51.9	52.2
Connecticut	415.6	.....	367.3	361.1	362.6	359.5	356.9	354.4	350.5	348.2
Delaware	45.9	44.3	50.7	47.0	46.5	44.8	45.0	*44.0	43.5	42.9
District of Columbia	.....	17.1	15.7	15.7	16.4	16.3	16.1	16.1	16.0	16.1
Florida	92.7	88.4	N.A.	83.2	86.5	88.7	91.2	93.5	95.6	94.9
Georgia	273.7	262.3	291.0	270.3	265.3	266.0	267.1	266.1	264.0	263.8
Idaho	20.5	20.2	25.4	23.8	20.8	17.9	16.3	*16.2	16.2	17.2
Illinois	1,248.0	1,136.2	N.A.	N.A.	.....	[1]	.....	.....	.....	.....
Indiana	562.4	516.8	593.5	565.7	569.9	557.1	538.7	527.2	524.8	523.2
Iowa	149.6	144.6	145.9	149.8	148.9	147.7	147.5	147.1	147.0	146.1
Kansas	81.5	87.3	95.0	90.8	90.0	88.3	86.6	86.0	86.0	86.2
Kentucky	.....	130.1	139.0	136.8	135.0	131.3	130.4	130.3	135.6	138.7
Louisiana	151.0	137.0	141.9	132.6	132.4	132.4	128.8	128.7	127.1	133.4
Maine	114.5	104.4	116.8	110.3	108.3	101.6	95.9	98.4	99.3	98.3
Maryland	230.3	210.4	227.8	212.2	213.5	209.3	207.7	*204.2	203.9	203.0
Massachusetts	.....	651.2	680.6	645.0	644.5	632.8	636.2	642.4	639.8	639.2
Michigan	1,041.7	980.7	1,154.0	1,116.3	1,103.4	1,089.1	932.7	909.4	905.0	999.1
Minnesota	199.5	186.4	213.2	198.3	190.5	187.2	184.4	183.2	181.7	181.6
Mississippi	91.9	77.4	89.9	84.4	83.7	80.8	78.9	80.2	79.6	78.7
Missouri	348.8	334.1	355.5	343.2	.....	334.6	330.8	333.0	330.5	328.1
Montana	18.4	17.9	20.1	19.6	18.7	18.5	17.1	*16.4	17.0	*17.3
Nebraska	49.3	48.2	50.4	49.6	48.3	46.6	46.1	45.4	45.6	45.9
Nevada	3.3	3.0	3.3	3.3	3.1	3.1	3.0	3.0	2.9	2.9
New Hampshire	.....	74.5	80.2	76.1	75.7	74.5	74.9	76.8	76.9	75.3
New Jersey	775.3	702.9	756.6	704.4	709.3	696.6	696.6	*698.8	695.2	687.5
New Mexico	9.1	10.8	11.9	12.1	11.8	11.7	11.3	11.1	11.0	10.6
New York	1,903.7	1,764.5	1,905.6	1,755.7	1,744.3	1,739.0	1,742.1	1,775.0	1,773.6	1,753.8
North Carolina	412.1	384.3	432.4	388.5	392.0	391.2	393.1	395.5	398.2	400.6
North Dakota	6.1	5.8	6.0	6.1	5.8	5.5	5.4	*5.3	5.3	5.6
Ohio	1,245.1	1,098.3	1,236.0	1,178.2	1,150.6	1,131.2	1,120.1	1,104.6	*1,096.2	1,079.4
Oklahoma	62.4	64.4	N.A.	66.3	66.0	65.0	63.7	63.0	62.1	62.8
Oregon	132.8	127.2	147.4	140.1	137.6	129.0	120.9	*119.2	110.6	106.7
Pennsylvania	1,524.5	1,356.5	1,469.6	1,364.4	1,379.2	1,362.1	1,350.2	*1,340.3	1,343.8	1,333.1
Rhode Island	153.5	130.8	149.3	135.0	134.5	131.6	133.4	135.8	136.7	133.4
South Carolina	202.1	200.3	210.9	201.2	200.6	199.6	200.8	200.6	200.5	199.4
South Dakota	11.3	11.2	11.4	11.6	11.4	10.9	10.8	10.8	11.0	10.9
Tennessee	253.6	236.4	257.7	247.3	242.1	237.4	238.9	*239.7	236.7	235.8
Texas	*321.6	331.1	358.7	340.0	337.4	337.0	330.7	331.9	330.0	332.5
Utah	26.5	27.7	33.8	30.1	27.1	26.2	26.0	*25.1	*25.0	*25.3
Vermont	39.8	34.2	36.6	33.9	34.4	33.9	34.0	33.8	32.7	32.7
Virginia	234.5	217.4	237.2	215.2	213.3	211.4	211.4	*212.2	212.7	214.8
Washington	173.5	170.6	189.8	175.3	169.6	169.4	163.2	162.3	155.1	149.7
West Virginia	137.6	128.3	136.1	131.7	131.4	129.6	128.6	126.1	126.7	125.8
Wisconsin	*433.1	405.5	453.3	446.1	418.4	411.0	405.1	404.5	397.6	393.5
Wyoming	6.3	6.4	6.7	6.1	5.7	5.5	5.3	5.6	5.7	5.9

[1] Revised data in all except the first three columns will be identified by an asterisk for the first month's publication of such data.

[2] Average for 1943 may not be strictly comparable with current data for those States now based on Standard Industrial Classification.

[3] The manufacturing series for these States are based on the 1942 Social Security Board Classification (others are on the 1945 Standard Industrial Classification.)

Source: Bureau of Labor Statistics

TOTAL MEMBERS OF UNIONS

In Thousands

	AFL	CIO	Independent	Total All Unions
1897	265	.....	175	440
1898	278	.....	189	467
1899	349	.....	201	550
1900	548	.....	243	791
1901	788	.....	270	1,058
1902	1,024	.....	311	1,335
1903	1,466	.....	358	1,824
1904	1,676	.....	391	2,067
1905	1,494	.....	424	1,918
1906	1,454	.....	438	1,892
1907	1,539	.....	538	2,077
1908	1,587	.....	505	2,092
1909	1,483	.....	482	1,965
1910	1,562	.....	554	2,116
1911	1,762	.....	556	2,318
1912	1,770	.....	635	2,405
1913	1,996	.....	665	2,661
1914	2,021	.....	626	2,647
1915	1,946	.....	614	2,560
1916	2,073	.....	649	2,722
1917	2,371	.....	605	2,976
1918	2,726	.....	642	3,368
1919	3,260	.....	786	4,046
1920	4,079	.....	955	5,034
1921	3,907	.....	815	4,722
1922	3,196	.....	754	3,950
1923	2,926	.....	703	3,629
1924	2,866	.....	683	3,549
1925	2,877	.....	689	3,566
1926	2,804	.....	788	3,592
1927	2,813	.....	787	3,600
1928	2,896	.....	671	3,567
1929	2,934	.....	691	3,625
1930	2,961	.....	671	3,632
1931	2,890	.....	638	3,528
1932	2,532	.....	694	3,226
1933	2,127	.....	730	2,857
1934	2,608	.....	641	3,249
1935	3,045	.....	683	3,728
1936	3,422	.....	742	4,164
1937	2,861	3,718	639	7,218
1938	3,623	4,038	604	8,265
1939	4,006	4,000	974	8,980
1940	4,247	3,625	1,072	8,944
1941	4,569	5,000	920	10,489
1942	5,483	4,195	1,084	10,762
1943	6,564	5,285	1,793	13,642
1944	6,807	5,935	1,879	14,621
1945	6,931	6,000	1,865	14,796
1946	7,152	6,000	1,822	14,974
1947	7,578	6,000	1,836	15,414
1948	7,200	6,000	2,400*	15,600
1949	8,000	6,000	4,000*	18,000

* Estimate.

Source: Bureau of Labor Statistics

METAL PRODUCT EARNINGS

Average For Fabricated Products

	Production and Related Workers: Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)	All Employees: Number (thousands)
1947	$52.06	40.8	$1.276	837	995
1948	56.68	40.6	1.396	812	976
1949	57.82	39.6	1.460	701	859
1950					
Jan.	59.93	40.3	1.487	693	846
Feb.	59.66	40.3	1.481	698	851
Mar.	59.64	40.3	1.480	709	863
Apr.	60.56	40.7	1.488	722	876
May	60.89	40.7	1.496	742	894
June	62.68	41.4	1.514	769	921
July	62.71	41.2	1.522	770	925

Source: Bureau of Labor Statistics

ALL METAL MINING

Employment and Earnings Per Worker

	Production and Related Workers: Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)	All Employees: Number (thousands)
1947	$54.63	41.8	$1.307	87.5	98.8
1948	60.80	42.4	1.434	94.7	105.1
1949	51.55	40.9	1.505	89.0	100.1
1950					
Jan.	63.71	42.0	1.517	88.2	97.7
Feb.	62.81	41.9	1.499	86.9	97.9
Mar.	61.61	41.1	1.504	87.3	98.4
Apr.	62.90	41.6	1.512	87.2	98.5
May	63.11	41.6	1.517	88.5	99.9
June	63.40	41.6	1.524	90.1	101.9
July	63.17	41.1	1.537	91.4	103.2
Aug.	64.33	41.8	1.539	90.7	102.5
Sept.	63.97	40.8	1.568	91.3	102.9

Source: Bureau of Labor Statistics

DURABLE GOODS INDUSTRIES

Employment and Earnings Per Worker

	All Employees: Number (thousands)	Production and Related Workers: Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	8,373	7,010	$52.46	40.6	$1.292
1948	8,315	6,908	57.11	40.5	1.410
1949	7,485	6,096	58.03	39.5	1.469
1950:					
Jan.	7,342	6,000	59.40	40.0	1.485
Feb.	7,324	5,982	59.47	40.1	1.483
Mar.	7,418	6,070	59.74	40.2	1.486
Apr.	7,548	6,195	61.01	40.7	1.499
May	7,813	6,452	61.72	40.9	1.509
June	7,971	6,598	62.94	41.3	1.524
July	7,978	6,597	63.01	41.1	1.533
Aug.	8,287	6,891	64.25	41.8	1.537
Sept.	8,435	7,024	65.09	41.7	1.561

Source: Bureau of Labor Statistics

TOTAL U. S. LABOR FORCES

Employment Status, Est. (000 omitted)

Average	Total Labor Force[1]	Civilian Labor Force	Employment	Unemployment
1929	49,440	49,180	47,630	1,550
1930	50,080	49,820	45,480	4,340
1931	50,680	50,420	42,400	8,020
1932	51,250	51,000	38,940	12,060
1933	51,840	51,590	38,780	12,830
1934	52,490	52,230	40,890	11,340
1935	53,140	52,870	42,260	10,610
1936	53,740	53,440	44,410	9,030
1937	54,320	54,060	46,300	7,700
1938	54,950	54,610	44,220	10,390
1939	55,600	55,230	45,750	9,480
1940	56,030	55,640	47,520	8,120
1941	57,380	55,910	50,350	5,560
1942	60,230	56,410	53,750	2,660
1943	64,410	55,540	54,470	1,070
1944	65,890	54,630	53,960	670
1945	65,140	53,880	52,820	1,040
1946	60,820	57,520	55,250	2,270
1947: Jan.	59,510	57,790	55,390	2,400
Feb.	59,630	58,010	55,520	2,490
Mar.	59,980	58,390	56,060	2,330
April	60,650	59,120	56,700	2,420
May	61,760	60,290	58,330	1,960
June[2]	64,007	62,609	60,055	2,555
July	64,035	62,664	60,079	2,584
Aug.	63,617	61,665	59,569	2,096
Sept.	62,130	60,791	58,872	1,912
Oct.	62,219	60,892	59,204	1,687
Nov.	61,501	60,216	58,595	1,621
Dec.	60,879	59,590	57,947	1,643
Aver.	61,607	60,168	58,027	2,142
1948: Jan.	60,455	59,214	57,149	2,065
Feb.	61,004	59,778	57,139	2,639
Mar.	61,005	59,769	57,329	2,440
April	61,790	60,524	58,330	2,193
May	61,860	60,422	58,660	1,761
June	64,740	63,479	61,296	2,184
July	65,135	63,842	61,615	2,227
Aug.	64,511	63,196	61,245	1,941
Sept.	63,578	62,212	60,312	1,899
Oct.	63,186	61,775	60,134	1,642
Nov.	63,138	61,724	59,893	1,831
Dec.	62,828	61,375	59,434	1,941
Aver.	62,748	61,442	59,378	2,064
1949: Jan.	61,546	60,078	57,414	2,664
Feb.	61,896	60,388	57,167	3,221
Mar.	62,305	60,814	57,647	3,167
April	62,327	60,835	57,819	3,016
May	63,482	61,963	58,694	3,269
June	64,866	63,398	59,619	3,778
July	65,278	63,815	59,720	4,095
Aug.	65,105	63,637	59,974	3,689
Sept.	64,222	62,783	59,411	3,351
Oct.	64,021	62,576	59,001	3,576
Nov.	64,383	62,927	59,518	3,409
Dec.	63,475	62,045	58,556	3,489
1950: Jan.	62,835	61,427	54,831	4,480
Feb.	63,003	61,637	54,694	4,684
Mar.	63,021	61,675	55,532	4,123
April	63,513	62,183	56,822	3,515
May	64,108	62,788	58,007	3,057
June	68,177	64,866	59,072	3,384
July	65,742	64,427	57,205	3,213
Aug.	66,204	64,867	57,901	2,500
Sept.	65,020	63,567	58,495	2,341

[1] Total labor force consists of the civilian labor force and the armed forces. However, about 150,000 persons in the armed forces in April 1940 who were stationed outside continental U. S. and who were not enumerated in the 1940 Census of Population are excluded from the total labor force. Figures since 1940 have correspondingly been reduced by 150,000 for purposes of comparability.

[2] Data for week ending March 30, 1940.

[3] Beginning in June 1947, the estimates are presented rounded to the nearest thousand. Because of rounding the individual figures do not necessarily add to the group totals.

Source: Bureau of Labor Statistics; Bureau of Census

EMPLOYEES IN SELECTED INDUSTRY GROUPS

Average Workers Incl. Production and Salaried Workers (000 Omitted)

Industry Group and Industry	1950							Annual Average		
	July	June	May	Apr.	Mar.	Feb.	Jan.	1949	1948	1947
Total Employees	44,017	43,969	43,330	42,926	42,295	41,681	42,125	43,006	44,201	43,371
Mining †	922	944	939	939	938	595	861	932	981	943
Metal	103.3	101.8	100.4	98.5	98.4	97.9	97.7	100.1	105.1	96.8
Iron	36.6	36.0	35.9	33.8	33.9	33.6	34.0	33.7	36.6	33.1
Copper	28.4	28.1	27.9	28.0	27.8	27.7	27.6	27.3	27.8	22.5
Lead and zinc	20.5	20.9	19.2	19.1	19.0	18.8	18.4	20.6	21.7	22.9
Anthracite	.....	75.3	76.2	75.3	76.9	75.9	75.6	77.3	80.0	79.4
Bituminous-coal	382.1	411.2	412.6	419.0	422.9	82.6	347.7	399.0	438.2	431.8
Crude petroleum and natural gas production	261.9	255.8	252.1	251.4	249.2	249.8	251.1	259.0	257.5	237.3
Nonmetallic mining and quarrying	101.4	99.6	97.3	94.5	90.2	88.6	88.9	96.4	100.1	97.6
Contract construction	2,502	2,413	2,242	2,076	1,907	1,861	1,919	2,156	2,165	1,882
Manufacturing	14,777	14,681	14,421	14,162	14,103	13,997	13,980	14,148	15,286	15,247
Durable goods [2]	7,978	7,971	7,813	7,548	7,418	7,324	7,342	7,455	8,315	8,373
Nondurable goods [3]	6,799	6,710	6,608	6,614	6,525	6,673	6,638	6,681	6,970	6,874
Ordnance and accessories	23.5	23.5	23.2	22.8	22.4	21.8	21.3	24.8	28.1	26.9
Primary metal industries	1,222	1,217	1,190	1,171	1,144	1,137	1,121	1,101	1,247	1,231
Blast furnaces, steel works, and rolling mills	621.4	616.3	606.4	599.2	583.3	587.5	584.8	550.4	612.0	589.0
Iron and steel foundries	229.7	227.9	220.3	215.7	208.6	203.6	198.3	217.0	259.3	256.8
Primary smelting and refining of nonferrous metals	54.3	55.2	54.6	54.2	54.4	54.1	51.1	52.3	55.6	55.1
Rolling, drawing, and alloying of nonferrous metals	96.0	96.0	94.9	93.2	92.4	90.6	89.0	87.0	103.8	111.5
Nonferrous foundries	92.1	91.8	87.4	84.3	83.3	80.8	79.0	75.8	85.2	85.9
Other primary metal industries	128.7	129.6	126.1	124.1	121.6	120.8	119.0	118.4	130.7	132.3
Fabricated metal products (except ordnance machinery and transportation equipment)	929	924	896	876	863	851	846	859	976	995
Tin cans and other tinware	51.3	48.6	45.6	44.6	43.5	41.8	41.2	45.8	48.7	47.7
Cutlery, hand tools, and hardware	153.0	156.4	154.4	152.5	151.2	147.3	145.2	142.3	154.4	155.6
Heating apparatus (except electric) and plumbers' supplies	147.2	149.0	145.4	143.9	140.4	137.8	133.0	132.0	165.8	174.3
Fabricated structural metal products	201.3	198.4	192.4	190.3	187.6	185.1	185.2	198.5	215.9	206.7
Metal stamping, coating, and engraving	172.7	170.5	162.2	156.3	152.9	152.1	151.2	147.9	172.2	180.4
Other fabricated metal products	203.1	200.6	195.6	188.0	187.7	187.0	188.9	192.4	219.0	229.1
Machinery (except electrical)	1,345	1,342	1,328	1,307	1,283	1,261	1,238	1,311	1,533	1,535
Engines and turbines	72.8	73.5	73.6	70.9	68.7	66.5	66.7	72.5	83.8	83.9
Agricultural machinery and tractors	180.1	180.3	180.6	180.5	177.5	175.2	171.0	181.3	191.3	178.9
Construction and mining machinery	99.1	97.8	95.9	95.4	95.2	93.4	91.3	101.3	122.6	120.2
Metalworking machinery	212.0	212.3	207.2	204.5	201.6	198.4	196.7	208.7	239.5	248.3
Special-industry machinery (except metalworking machinery)	165.3	165.1	162.6	160.8	158.7	157.1	155.9	171.8	201.9	204.4
General industrial machinery	185.0	183.7	181.3	178.8	175.7	174.0	172.8	188.4	209.8	208.8
Office and store machines and devices	89.5	89.4	88.4	88.0	87.0	85.4	84.7	90.6	109.1	108.2
Service-industry and household machines	178.8	181.0	181.8	175.6	169.3	163.9	155.2	145.4	191.3	184.8
Miscellaneous machinery parts	160.5	158.8	156.6	152.6	149.3	147.0	143.9	153.2	183.4	197.3
Electrical machinery	817	809	800	791	779	772	762	759	869	918
Electrical generating, transmission, distribution, and industrial apparatus	313.8	307.8	307.3	303.3	300.0	298.1	294.4	295.2	332.9	343.5
Electrical equipment for vehicles	70.0	69.6	67.8	66.6	65.1	65.5	65.1	64.5	69.0	74.3
Communication equipment	297.0	295.0	288.6	287.6	283.2	279.7	276.7	271.1	312.2	336.2
Electrical appliances, lamps, and miscellaneous products	136.2	136.2	136.2	133.7	130.5	128.8	126.0	128.3	154.8	164.0
Transportation equipment	1,297	1,307	1,269	1,122	1,100	1,091	1,197	1,212	1,263	1,263
Automobiles	883.7	894.2	862.4	720.3	698.9	689.0	797.4	769.0	792.8	776.2
Aircraft and parts	259.3	257.2	254.4	253.3	252.4	251.7	251.9	255.6	228.1	228.5
Aircraft	172.8	170.7	169.3	167.9	168.5	168.1	168.8	169.7	151.7	151.4
Aircraft engines and parts	52.8	52.1	50.8	50.7	50.6	50.2	50.1	51.8	45.7	47.8
Aircraft propellers and parts	7.7	7.8	7.9	7.9	8.0	8.1	8.1	7.9	7.4	7.4
Other aircraft parts and equipment	26.0	26.6	26.4	26.8	27.3	27.3	26.9	26.2	22.4	22.0
Ship and boat building and repairing	81.2	81.0	80.1	79.9	80.2	81.2	79.4	100.3	140.7	159.4
Ship building and repairing [4]	67.4	68.5	66.3	66.7	68.3	70.0	68.9	88.2	124.2	137.3
Railroad equipment	61.3	63.7	61.8	58.4	59.2	60.1	60.6	78.1	84.8	81.4
Other transportation equipment	11.8	11.1	10.7	10.1	9.6	9.1	7.7	10.9	16.6	17.0
Instruments and related products	242	243	239	236	234	232	233	238	260	286
Ophthalmic goods	24.8	24.9	25.0	25.0	25.1	25.1	25.1	26.8	28.2	30.1
Photographic apparatus	51.0	50.1	49.1	48.5	48.2	48.1	48.3	52.6	60.3	61.6
Watches and clocks	27.8	28.1	28.0	28.5	28.9	29.3	30.3	31.4	40.8	41.3
Professional and scientific instruments	138.1	139.4	137.1	133.7	131.5	129.7	129.2	127.1	130.5	131.9
Miscellaneous manufacturing industries	430	440	434	435	433	429	420	426	466	481
Jewelry, silverware, and plated ware	51.1	52.5	52.7	52.7	53.2	54.4	54.2	55.4	60.3	53.1
Toys and sporting goods	71.5	71.3	69.7	69.5	67.2	63.8	61.7	58.7	80.8	80.0
Costume jewelry, buttons, notions	52.1	52.8	51.5	53.1	56.5	59.4	56.7	57.7	62.3	61.9
Other miscellaneous manufacturing industries	254.8	263.1	259.8	259.8	256.5	251.3	246.9	243.8	262.8	.....

Source: Bureau of Labor Statistics

8 METAL FACTS SECTION

Employment in Metalworking Industry; Work Stoppages; and Employment and Earnings, Electrical Machinery

EMPLOYMENT IN THE METALWORKING INDUSTRY

Plants With 21 Workers or More in 3-Digit Major Industry Groups by Government Codes

Titles of 3-Digit Groups	Number of Workers in Plants Employing Over 21 Plant Workers	Number of Plants Employing Over 21 Plant Workers	Number Plants by Size: With Over 100 Workers	With 51 to 100 Workers	With 21 to 50 Workers	3-Digit Govt. Code
33—Primary Metals						
Blast Furnaces, Steel Works and Rolling Mills	541,536	219	209	5	5	331
Iron and Steel Foundries	191,698	985	455	257	273	332
Smelting and Refining of Nonferrous Metals	46,625	114	74	15	25	333-4
Rolling, Drawing and Alloying Nonferrous Metals	100,826	149	92	27	30	335
Nonferrous Foundries	50,119	368	100	81	187	336
Miscellaneous Primary Metal	92,709	423	192	76	155	339
34—Fabricated Metal Products						
Tin Cans and Tinware	43,806	143	95	23	25	341
Cutlery, Hand Tools and Hardware	143,022	735	275	173	287	342
Heating Apparatus (Except Electrical) and Plumbers Supplies	149,431	651	335	146	170	343
Fabricated Structural Products	197,891	1,663	453	381	829	344
Metal Stamping and Coating	180,704	1,050	318	236	496	346
Lighting Fixtures	26,229	207	55	55	97	347
Fabricated Wire Products	53,590	340	127	82	131	348
Miscellaneous Fabricated Metal Products	101,401	644	222	163	259	349
35—Machinery (Except Electrical)						
Engines and Turbines	72,717	102	66	22	14	351
Agricultural Machinery and Tractors	162,532	418	166	98	154	352
Construction and Mining Equipment	101,966	466	199	104	163	353
Metalworking Machinery	207,448	1,222	380	258	584	354
Special Industry Machinery	179,517	1,054	373	241	440	355
General Industrial Machinery and Equipment	178,577	962	378	217	367	356
Office and Store Machines	100,973	172	99	33	40	357
Service Industry and Household Machines	194,578	412	210	100	102	358
Miscellaneous Machinery Parts	137,514	656	184	133	338	359
36—Electrical Machinery and Equipment						
Electrical Generating Transmission and Industrial Equipment	291,333	845	315	147	183	361
Electrical Appliances (Not elsewhere classified)	61,668	144	71	26	47	362
Insulated Wire and Cable	21,844	48	38	8	2	363
Electrical Equipment for Transportation Equipment	64,649	63	41	8	14	364
Electric Lamps (Bulbs, etc.)	23,251	31	22	2	7	365
Communication Equipment	259,749	339	218	54	69	366
Miscellaneous Electrical Products	25,591	105	48	23	36	369
37—Transportation Equipment						
Motor Vehicles and Equipment for	751,427	817	472	139	206	371
Aircraft and Parts	200,092	138	85	23	30	372
Ship and Boat Building	162,344	147	113	15	19	373
Railroad Equipment	98,236	77	54	13	10	374
Motorcycles, Bicycles and Parts	12,405	35	16	8	11	375
Miscellaneous Transportation Equipment	5,560	30	9	5	16	379
38—Instruments and Photographic Equipment						
Lab. Scientific and Engineering Instruments	11,807	71	22	12	37	381
Mechanical Measuring and Control Instruments	43,928	153	76	30	47	382
Optical Instruments	13,091	15	8	5	2	383
Surgical and Dental Instruments	12,461	79	23	25	31	384
Ophthalmic Goods	6,024	15	9	4	2	385
Photographic Equipment	39,009	56	27	9	20	386
Watches, Clocks, and Clock-operated Devices	36,137	45	33	3	9	387
All Others, Including Ordnance and Accessories, Furniture and Fixtures and Miscellaneous Manufacturing Industries (Metal)	295,643	1,371	537	335	499	...
Total for Metalworking Plants over 21 workers	5,091,658	17,578	7,290	3,820	6,468	...

Source: THE IRON AGE Basic Marketing Data

ELECTRICAL MACHINERY

Employment and Earnings Per Worker

	Production and Related Workers: Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)	All Employees Number (thousands)
1947	$51.26	40.3	$1.272	706	918
1948	55.66	40.1	1.388	656	869
1949	56.96	39.5	1.442	552	759
1950					
Jan.	58.44	40.5	1.443	561	762
Feb.	58.26	40.4	1.442	573	772
Mar.	58.44	40.5	1.443	580	779
Apr.	56.71	40.6	1.446	595	791
May	59.26	40.8	1.453	606	800
June	58.58	40.4	1.450	615	809
July	59.44	40.6	1.448	620	817
Aug.	60.21	41.1	1.465	655	854
Sept.	61.54	41.5	1.483	670	879

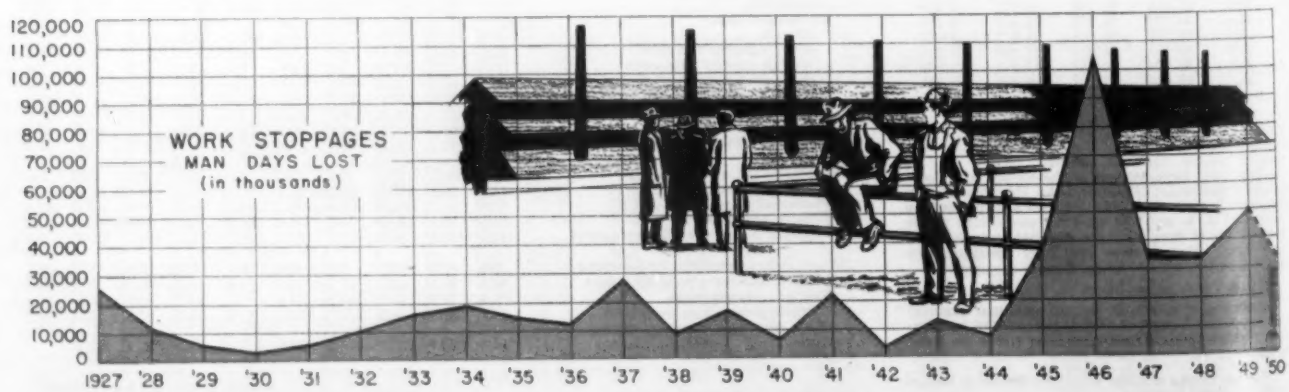
Source: Bureau of Labor Statistics

WORK STOPPAGES—1927-1950

Workers Involved and Man-days Idle

	Work Stoppages Beginning in Period: Number	Workers Involved Number (thousands)	Man-days Idle (all stoppages): Number (thousands)	Per Worker Involved
1927	707	330	26,200	79.5
1928	604	314	12,600	40.2
1929	921	289	5,350	18.5
1930	637	183	3,320	18.1
1931	810	342	6,890	20.2
1932	841	324	10,500	32.4
1933	1,695	1,170	16,900	14.4
1934	1,856	1,470	19,600	13.4
1935	2,014	1,120	15,500	13.8
1936	2,172	789	13,900	17.6
1937	4,740	1,880	28,400	15.3
1938	2,772	688	9,150	13.3
1939	2,613	1,170	17,800	15.2
1940	2,508	577	6,700	11.6
1941	4,288	2,360	23,000	9.8
1942	2,968	840	4,180	5.0
1943	3,752	1,980	13,500	66.8
1944	4,956	2,120	8,720	4.1
1945	4,750	3,470	38,000	11.0
1946	4,985	4,600	116,000	25.2
1947	3,693	2,170	34,600	15.9
1948	3,419	1,960	34,100	.66
1949	3,606	3,030	50,500	.59
1950:				
Jan.	225	185	2,600	.38
Feb.	210	75	7,850	1.27
Mar.	260	80	3,750	.49
Apr.	400	160	3,150	.47
May	450	325	3,000	.40
June	425	260	2,750	.36
July	425	225	2,900	.41
Aug.	560	350	2,900	.35
Sept.	525	275	3,500	.48

Source: Bureau of Labor Statistics.





FEDERAL CIVILIAN WORKERS

Totals, Continental and All Areas

Year and Month	All Branches	Executive, Total	Legislative	Judicial
Total (including areas outside continental United States)				
1947	2,153,170	2,142,825	7,127	3,218
1948	2,066,152	2,055,397	7,273	3,482
1949	2,100,407	2,089,151	7,661	3,595
1950: Jan.	1,976,093	1,964,248	8,082	3,784
Feb.	1,970 815	1,959,063	7,986	3,766
Mar.	1,970,603	1,958,806	8,048	3,749
Apr.	2,110,903	2,099,036	8,102	3,765
May	2,061,939	2,050,132	8,048	3,759
June	2,022,117	2,010,286	8,063	3,768
July	1,986,705	1,974,902	8,031	3,772
Continental United States				
1947	1,893,875	1,883,600	7,127	3,148
1948	1,846,840	1,836,158	7,273	3,409
1949	1,921,903	1,910,724	7,661	3,518
1950: Jan.	1,825,245	1,813,475	8,083	3,707
Feb.	1,820,625	1,808,950	7,986	3,689
Mar.	1,821,470	1,809,750	8,048	3,672
Apr.	1,959,746	1,947,956	8,102	3,688
May	1,910,210	1,898,480	8,048	3,682
June	1,871,293	1,859,539	8,063	3,691
July	1,839,477	1,827,751	8,031	3,695

Source: Bureau of Labor Statistics

FEDERAL CIVILIAN PAYROLLS

For U. S. and All Areas (000 omitted)

Year and Month	All Areas — All Branches
1947	$5,968,107
1948	6,223,486
1949	6,699,270
1950: January	553,090
February	521,041
March	583,188
April	539,430
May	577,915
June	573,659
July	558,231
August	618,049
September	585,147
Continental United States	
1947	$5,463,671
1948	5,731,115
1949	6,234,345
1950: January	516,707
February	488,138
March	545,866
April	506,707
May	541,195
June	536,052
July	522,981
August	580,732
September	550,704

Source: Bureau of Labor Statistics

CONSUMERS' PRICE INDEX IN LARGE CITIES

For Moderate-Income Families by Group of Selected Commodities, 1935-39 = 100

Period	All Items	Food	Apparel	Rent	Total	Gas and Electricity	House Furnishings	Miscellaneous
1913	70.7	79.9	69.3	92.2	61.9	.....	59.1	60.9
1914	71.8	81.8	69.8	92.2	62.3	.....	60.7	61.9
1915	72.5	80.9	71.4	92.9	62.5	.....	63.6	63.8
1916	77.9	90.8	76.3	94.0	65.0	.....	70.9	66.3
1917	91.6	116.9	94.1	93.2	72.4	.....	82.8	65.1
1918	107.5	134.4	127.5	94.9	84.2	.....	106.4	77.6
1919	123.8	149.8	168.7	102.7	91.1	.....	134.1	87.8
1920	143.3	168.8	201.0	120.7	106.9	.....	164.6	100.6
1921	127.7	128.3	154.8	138.6	114.0	.....	138.8	104.3
1922	119.7	119.9	125.8	142.7	113.1	.....	117.5	101.2
1923	121.9	124.0	125.9	146.4	115.2	.....	126.1	100.8
1924	122.2	122.8	124.9	151.6	113.7	.....	124.0	101.4
1925	125.4	132.9	122.4	152.2	115.4	.....	121.5	102.2
1926	126.4	137.4	120.6	150.7	117.2	.....	118.8	102.6
1927	124.0	132.3	118.3	148.3	115.4	.....	116.9	103.2
1928	122.6	130.8	116.5	144.8	113.4	.....	113.1	103.8
1929	122.5	132.5	115.3	141.4	112.5	.....	111.7	104.6
1930	119.4	126.0	112.7	137.5	111.4	.....	108.9	105.1
1931	106.7	103.9	102.6	130.3	108.9	.....	96.6	104.1
1932	97.6	86.5	90.8	118.9	103.4	.....	85.4	101.7
1933	92.4	84.1	87.9	100.7	100.0	.....	84.2	99.4
1934	95.7	93.7	96.1	84.4	101.4	.....	92.6	97.9
1935	98.1	100.4	96.8	84.2	100.7	102.8	94.8	98.1
1936	99.1	101.3	97.6	86.4	100.2	100.8	96.3	98.7
1937	102.7	105.3	102.6	100.9	100.2	99.1	104.3	101.0
1938	100.8	97.6	102.2	104.1	99.9	99.0	103.3	101.8
1939	99.4	95.2	100.5	104.3	99.0	98.9	101.3	100.7
1940	100.2	96.6	101.7	104.6	99.7	99.0	100.5	101.1
1941	105.2	105.5	106.3	106.2	102.2	97.1	107.3	104.0
1942	116.5	123.9	124.2	108.5	105.4	96.7	122.2	110.9
1943	123.6	138.0	129.7	108.0	107.7	96.1	125.6	115.8
1944	125.5	136.1	136.8	108.2	109.8	95.8	126.4	121.3
1945	128.4	139.1	115.9	108.3	110.3	95.0	145.8	124.1
1946	139.3	159.6	160.2	108.6	112.4	92.4	159.2	128.8
1947	159.2	193.8	185.8	111.2	121.1	92.0	184.4	139.9
1948	171.2	210.2	198.0	117.4	133.9	94.3	195.8	149.9
1949	169.1	210.9	190.1	120.8	137.5	96.7	189.0	154.6
1950: Jan.	166.9	196.0	185.0	122.6	140.0	96.7	184.7	155.1
Feb.	166.5	194.6	184.8	122.8	140.3	97.1	185.3	155.1
Mar.	167.0	196.0	185.0	122.9	140.9	97.1	185.4	155.0
Apr.	167.3	196.6	185.1	123.1	141.4	97.2	185.6	154.8
May	168.6	200.3	185.1	123.5	138.8	97.1	185.4	155.3
June	170.2	204.6	185.0	123.9	139.9	97.0	185.2	155.3
July	172.5	210.0	184.7	124.4	139.5	97.0	186.4	156.2
Aug.	173.0	209.0	185.9	124.8	140.9	97.0	189.3	156.1
Sept.	173.8	208.5	190.5	124.8	141 8	97.0	193 4	156 8

Source: Bureau of Labor Statistics

ALL MANUFACTURING EMPLOYMENT AND WAGES

For Production and Related Workers, Average Employment, Hours and Earnings

	All Employees	Production and Related Workers					
			Indexes (1939 Averages = 100)				
	Number (thousands)	Number (thousands)	Employment	Payroll	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1939	10,078	8,192	100.0	100.0	$23.88	37.7	$0.633
1940	10,780	8,811	107.5	118.6	25.20	38.1	.661
1941	12,974	10,677	122.8	164.9	29.58	40.6	.729
1942	15,051	12,854	156.9	241.5	36.65	42.9	.853
1943	17,381	15,014	183.3	331.1	43.14	44.9	.961
1944	17,111	14,807	178.3	343.7	46.08	45.2	1.019
1945	16,302	12,889	157.0	293.5	44.39	43.4	1.023
1946	14,461	12,108	147.8	271.1	43.74	40.4	1.084
1947	15,247	12,794	158.2	326.9	49.97	40.4	1.237
1948	15,286	12,717	155.2	351.4	54.14	40.1	1.350
1949	14,146	11,597	141.6	325.3	54.92	39.2	1.401
1950: Jan.	13,980	11,449	139.8	329.2	56.29	39.7	1.418
Feb.	13,997	11,460	139.9	330.0	56.37	39.7	1.420
Mar.	14,103	11,549	141.0	333.5	56.53	39.7	1.424
Apr.	14,162	11,597	141.6	337.2	56.93	39.7	1.434
May	14,413	11,846	144.5	348.6	57.66	40.0	1.442
June	14,668	12,072	147.4	362.2	58.74	40.4	1.454
July	14,777	12,151	147.9	367.4	59.21	40.5	1.462
Aug.	15,442	12,794	156.1	394.0	60.28	41.2	1.463
Sept.	15,087	13,021	159.0	.....	60.68	41.0	1.480

Source: Bureau of Labor Statistics

8 METAL FACTS SECTION

Injury Rates by Industry; Productivity, Mining Industries; Index of Plant Workers and Employment in Coke and Byproducts

INJURY RATES BY INDUSTRY—1949

Permanent and Temporary Disabilities by Frequency and Severity

Industry	Number of Units	Frequency Rates: Fatal, Permanent Total	Permanent Partial Disability	Temporary Total Disability	All Disabilities	Rank (All Cases)	Severity Rates: Rate	Rank
All Reporting Industries, 1948	6,707	.79	....	10.70	11.49	..	1.12	..
All Reporting Industries, 1949	7,185	.08	.64	9.42	10.14	..	1.02	..
Aircraft Manufacturing	17	.02	.61	3.62	4.25	2	.40	8
Air Transport	13	.03	.04	12.90	12.97	26	.38	6
Automobile	228	.02	.69	5.64	6.35	9	.57	13
Cement	139	.25	.80	4.13	5.18	6	2.21	34
Chemical	545	.09	.48	5.19	5.72	7	.60	14
Clay Products	120	.23	.86	21.24	22.33	35	2.33	35
Communications	59	.02	.01	2.11	2.14	1	.15	1
Construction	449	.24	.42	18.82	19.48	34	2.15	33
Electrical Equipment	190	.01	.64	4.18	4.83	3	.38	7
Electric Utilities	238	.31	.42	13.29	14.02	28	2.37	36
Food	571	.03	1.20	14.32	16.05	31	.90	21
Foundries	174	.11	1.02	12.74	13.87	27	1.43	28
Gas Utilities	425	.09	.43	17.40	17.92	33	.99	22
Glass	58	.01	.69	7.28	7.98	14	.48	9
Leather	74	....	.54	13.54	14.08	29	.46	10
Lumber	110	.44	1.82	45.46	47.72	40	4.07	39
Machinery	326	.03	1.36	9.40	10.79	21	.73	18
Marine Transport	51	.19	.78	23.48	24.45	37	2.09	32
Meat Packing	84	.11	.58	12.05	12.74	25	1.20	25
Mining, Coal	233	.68	1.58	39.22	41.48	39	6.84	40
Mining, other than Coal	234	.52	.98	32.13	33.63	38	4.63	38
Misc. Iron & Steel Products	348	.05	1.04	11.31	12.40	24	.89	20
Misc. Manufacturing	92	.04	.81	6.58	7.43	12	.63	15
Non-Ferrous Metals & Prods.	98	.10	1.28	10.53	11.91	23	1.54	30
Petroleum	239	.11	.36	10.07	10.54	20	1.03	24
Printing & Publishing	54	....	.37	6.40	6.77	11	.23	2
Pulp and Paper	419	.06	.86	10.70	11.62	22	1.03	23
Quarry	273	.49	1.07	15.87	17.43	32	4.02	37
Railroad Equipment	32	.09	2.46	5.80	8.35	15	1.62	31
Railroads††	....	....	....	....	14.05	..	....	..
Rubber	83	.02	.52	4.56	5.10	5	.51	11
Service	36	....	.13	6.24	6.37	10	.39	4
Sheet Metal	146	.01	.95	7.88	8.84	17	.69	17
Shipbuilding	42	.13	.32	8.41	8.86	18	1.28	26
Steel	142	.12	1.02	3.82	4.96	4	1.49	29
Storage & Warehousing	71	....	.38	9.78	10.14	19	.64	16
Textile	244	.02	.65	7.21	7.88	13	.57	12
Tobacco	41	....	.48	5.49	5.97	8	.23	3
Transit	202	.05	.21	15.30	15.56	30	.76	19
Wholesale and Retail Trade	40	.03	.04	8.62	8.69	16	.38	5
Wood Products	104	.03	1.67	21.55	23.25	36	1.32	27

Source: National Safety Council

INDEXES OF PLANT WORKERS

Manufacturing Employment, Payrolls
(1939 average = 100)

	Employment	Weekly Payroll
1939: Average	100.0	100.0
1940: Average	107.5	113.6
1941: Average	132.8	164.9
1942: Average	180.9	241.5
1943: Average	183.3	331.1
1944: Average	178.3	343.7
1945: Average	157.0	293.5
1946: Average	147.8	271.1
1947: Average	156.2	328.9
1948: Average	155.2	351.4
1949: Average	141.6	325.3
1950: Jan.	139.8	329.2
Feb.	139.9	330.0
March	141.0	333.5
Apr.	141.6	337.2
May	144.5	348.9
June	147.3	361.9
July	148.2	367.2
Aug.	156.1	394.0
Sept.	158.0	..

Source: Bureau of Labor Statistics

COKE, BYPRODUCTS INDUSTRY

Employment and Earnings Per Worker

	All Employees: Number (thousands)	Production and Related Workers: Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	18.6	15.9	$52.17	39.4	$1.324
1948	20.0	17.5	58.56	39.7	1.475
1949	19.5	16.9	61.07	39.3	1.554
1950:					
Jan.	20.2	17.4	61.93	39.8	1.556
Feb.	19.6	16.8	61.17	39.8	1.537
Mar.	19.7	17.0	58.90	38.1	1.546
Apr.	20.5	17.9	62.60	40.0	1.565
May	20.7	18.1	61.89	39.8	1.555
June	21.1	18.5	62.73	39.7	1.580
July	21.1	18.5	63.36	39.6	1.600
Aug.	21.4	18.6	63.76	40.2	1.586
Sept.	21.4	18.7	64.12	40.1	1.599

Source: Bureau of Labor Statistics

LABOR TURN-OVER RATES IN MANUFACTURING INDUSTRIES

Per 100 Employees, By Class of Turn-Over Per Month

Class of Turn-Over and Year	January	February	March	April	May	June	July	August	September	October	November	December
Total Accession:												
1950	3.6	3.2	3.6	3.5	4.4	4.8	4.7	[2]6.4	....	....	....	....
1949	3.2	2.6	3.0	2.9	3.5	4.4	3.5	4.4	4.1	3.7	3.3	3.2
1948	4.6	3.9	4.0	4.0	4.1	5.7	4.7	5.0	5.1	4.5	3.9	2.7
1947	6.0	5.0	5.1	5.1	4.8	5.5	4.9	5.3	5.9	5.5	4.8	3.6
1946	8.5	6.6	7.1	6.7	6.1	6.7	7.4	7.0	7.1	6.8	5.7	4.3
1945	7.0	5.0	4.9	4.7	5.0	5.9	5.8	5.9	7.4	8.6	8.7	6.9
1939	4.1	3.1	3.3	2.9	3.3	3.9	4.2	5.1	6.2	5.9	4.1	2.8
Total Separation:												
1950	3.1	3.0	2.9	2.8	3.1	3.0	2.9	[2]4.3	....	....	....	....
1949	4.6	4.1	4.8	4.8	5.2	4.3	3.8	4.0	4.2	4.1	4.0	3.2
1948	4.3	4.2	4.5	4.7	4.3	4.5	4.4	5.1	5.4	4.5	4.1	4.3
1947	4.9	4.5	4.9	5.2	5.4	4.7	4.6	5.3	5.9	5.0	4.0	3.7
1946	6.8	6.3	6.6	6.3	6.3	5.7	5.8	6.6	6.9	6.3	4.9	4.5
1945	6.2	6.0	6.8	6.6	7.0	7.9	7.7	17.9	12.0	8.6	7.1	5.9
1939	3.2	2.6	3.1	3.5	3.5	3.3	3.3	3.0	2.8	2.9	3.0	3.5
Quit:[4]												
1950	1.1	1.0	1.2	1.3	1.6	1.7	1.8	[2]3.0	....	....	....	....
1949	1.7	1.4	1.6	1.7	1.6	1.5	1.4	1.8	2.1	1.5	1.2	.9
1948	2.6	2.5	2.8	3.0	2.8	2.9	2.9	3.4	3.9	2.8	2.2	1.7
1947	3.5	3.2	3.5	3.7	3.5	3.1	3.1	4.0	4.5	3.6	2.7	2.3
1946	4.3	3.9	4.2	4.3	4.2	4.0	4.8	5.3	5.3	4.7	3.7	....
1945	4.6	4.3	5.0	4.8	4.8	5.1	5.2	6.2	6.7	5.8	4.7	4.0
1939[1]	.9	.6	.8	.8	.7	.7	.7	.8	1.1	.9	.6	.7
Discharge:												
1950	.2	.2	.2	.2	.3	.3	.3	[2].4	....	....	....	....
1949	.3	.3	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2
1948	.4	.4	.4	.4	.3	.4	.4	.4	.4	.4	.4	.3
1947	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
1946	.5	.5	.4	.4	.4	.3	.4	.4	.4	.4	.4	.4
1945	.7	.7	.7	.6	.6	.7	.6	.7	.6	.5	.5	.4
1939[3]	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.2	.1
Lay-off:[4]												
1950	1.7	1.7	1.4	1.2	1.1	.9	.6	[2].6	....	....	....	....
1949	2.8	2.3	2.8	2.8	3.3	2.5	2.1	1.8	1.8	2.3	2.5	2.0
1948	1.2	1.2	1.2	1.2	1.1	1.1	1.0	1.2	1.0	1.2	1.4	2.2
1947	.9	.8	.9	1.0	1.4	1.1	1.0	.8	.9	.9	.8	.9
1946	1.8	1.7	1.8	1.4	1.5	1.2	.8	.7	1.0	1.0	.7	1.0
1945	.6	.7	.7	.5	1.2	1.7	1.5	10.7	4.5	2.3	1.7	1.3
1939[1]	2.2	1.9	2.2	2.6	2.9	2.5	2.5	2.1	1.6	1.8	2.0	2.7

[1] Prior to 1943, rates relate to wage earners only.
[2] Preliminary figures.
[3] Prior to September 1940, miscellaneous separations were included with quits.
[4] Including temporary, indeterminate (of more than 7 days' duration) and permanent lay-offs.

TRANSPORTATION—EARNINGS

Employment and Hours Per Worker

	Production and Related Workers				All Employees
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)	Number (thousands)
1947	$56.87	39.3	$1.447	1,038	1,263
1948	61.58	39.0	1.579	1,031	1,263
1949	64.95	39.2	1.657	957	1,212
1950					
Jan.	68.12	40.5	1.682	978	1,197
Feb.	66.58	39.7	1.677	872	1,091
Mar.	67.46	40.2	1.678	879	1,100
Apr.	70.46	41.3	1.706	899	1,122
May	69.62	41.0	1.698	1,045	1,269
June	72.37	42.0	1.723	1,077	1,308
July	71.71	41.5	1.728	1,070	1,297
Aug.	72.70	41.9	1.735	1,112	1,342
Sept.	72.41	41.0	1.766	1,143	1,374

Source: Bureau of Labor Statistics

DEATH RATES BY INDUSTRY

Deaths of Workers, Major Industries

Industry Group	Total Deaths 1949	Deaths per 100,000 Workers 1949	1948	1947
Trade	1,500	14	14	15
Service	2,100	14	15	16
Manufacturing	2,300	15	16	17
Public utilities	400	28	29	31
Transportation	1,300	43	48	53
Agriculture	4,300	54	55	52
Construction	2,100	77	93	96
Mining, quarrying, oil and gas wells	1,000	116	154	167

Source: National Safety Council

ACCIDENTS TO ALL WORKERS

Death and Injury, Place of Accident

	1948		1949	
Place of Accident	Deaths	Injuries	Deaths	Injuries
At work	16,500	1,950,000	15,000	1,850,000
Away from work	32,000	2,650,000	31,500	2,600,000
Motor vehicle	16,500	550,000	16,500	600,000
Public non-motor vehicle	8,000	1,000,000	7,800	950,000
Home	7,500	1,100,000	7,200	1,050,000

Source: National Safety Council

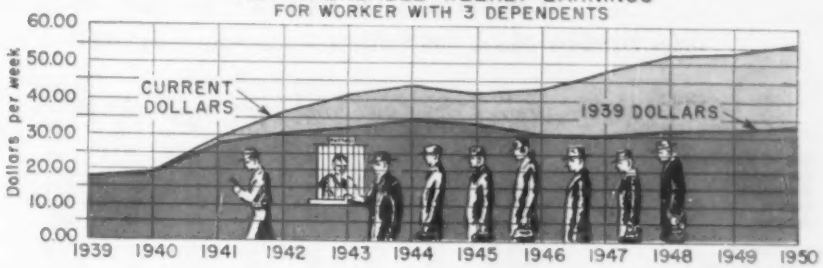
OCCUPATIONAL DEATH RATES

Deaths Per 10^5 Workers, 1933-1948

Year	Deaths	No. of Workers (Millions)	Deaths per 100,000 Workers
1933	14,500	39	37
1934	16,000	42	38
1935	16,500	43	38
1936	18,500	45	41
1937	19,000	46	41
1938	16,000	44	36
1939	15,500	45	34
1940	17,000	46	37
1941	18,000	49	37
1942	18,500	52	36
1943	17,500	53	33
1944	16,000	52	31
1945	16,500	51	32
1946	16,500	53½	31
1947	17,000	56½	30
1948	16,500	57½	29
1949	15,000	57	26

Source: National Safety Council

NET SPENDABLE WEEKLY EARNINGS
FOR WORKER WITH 3 DEPENDENTS



SPENDABLE WEEKLY EARNINGS OF WORKERS

Gross & Net Average Earnings of Production Workers in Manufacturing Industries[1]

Period	Gross Average Weekly Earnings		Net Spendable Average Weekly Earnings			
			Worker With No Dependents		Worker With 3 Dependents	
	Amount	Index (1939=100)	Current Dollars	1939 Dollars	Current Dollars	1939 Dollars
1941: Jan.	$26.64	111.7	$25.41	$25.06	$26.37	$26.00
1945: Jan.	47.50	199.1	39.40	30.81	45.17	35.33
July	45.45	190.5	37.80	29.04	43.57	33.47
1946: June	43.31	181.5	37.30	27.81	42.78	31.90
1939: Average	23.86	100.0	23.58	23.58	23.62	23.62
1940: Average	25.20	105.6	24.69	24.49	24.95	24.75
1941: Average	29.58	124.0	28.05	26.51	29.28	27.67
1942: Average	36.65	153.6	31.77	27.11	36.28	30.96
1943: Average	43.14	180.8	36.01	28.97	41.39	33.30
1944: Average	46.06	193.1	38.29	30.32	44.06	34.89
1945: Average	44.39	186.0	36.97	28.61	42.74	33.08
1946: Average	43.74	183.3	37.65	28.87	43.13	30.78
1947: Average	49.97	209.4	42.76	28.70	48.24	30.12
1948: Average	54.14	226.9	47.43	27.54	53.17	30.87
1949: Average	54.92	230.2	48.09	28.27	53.83	31.64
1950: Jan.	56.29	235.9	48.94	29.15	54.70	32.58
Feb.	56.37	236.3	49.00	29.25	54.76	32.69
March	56.53	236.9	49.13	29.24	54.90	32.68
April	56.93	238.6	49.46	29.39	55.23	32.81
May	57.54	241.2	49.95	29.45	55.74	32.86
June	58.70	246.0	50.90	29.73	56.73	33.13
July	59.21	248.2	51.32	29.57	57.13	32.94
Aug.	60.32	252.8	52.24	30.02	58.11	33.39

[1] Net spendable average weekly earnings are obtained by deducting from gross average weekly earnings, social security and income taxes for which the specified type of worker is liable. The amount of income tax liability depends on the number of dependents supported by the worker as well as on the level of his gross income. Net spendable earnings have, therefore, been computed for 2 types of income-receivers: (1) A worker with no dependents; (2) A worker with 3 dependents.

The computation of net spendable earnings for both the factory worker with no dependents and the factory worker with 3 dependents are based upon the gross average weekly earnings for all production workers in manufacturing industries without direct regard to marital status and family composition. The primary value of the spendable series is that of measuring relative changes in disposable earnings for 2 types of income-receivers. That series does not, therefore, reflect actual differences in levels of earnings for workers of varying age, occupation, skill, family composition, etc.

Source: Bureau of Labor Statistics

REFINING OF ALUMINUM

Employment and Earnings Per Worker

Year	Production and Related Workers: Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Production Workers (thousands)
1947	$53.46	40.9	$1.307	7.3
1948	58.95	41.4	1.424	7.9
1949	61.95	41.3	1.500	7.8
1950: Jan.	61.16	40.8	1.499	8.0
Feb.	61.66	41.0	1.504	8.3
Mar.	62.25	40.9	1.522	8.4
Apr.	62.03	40.7	1.524	8.4
May	62.73	41.0	1.530	8.6
June	62.78	41.1	1.527	8.6
July	63.06	41.0	1.538	9.3
Aug.	62.99	40.9	1.540	9.3
Sept.	63.51	41.0	1.549	8.8

Source: Bureau of Labor Statistics

METALWORKING MACHINERY

Employment and Earnings Per Worker

	Production and Related Workers				All Employees
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)	Number (thousands)
1947	$58.49	42.2	$1.386	196.1	248.3
1948	62.94	42.1	1.495	186.6	239.5
1949	61.11	39.5	1.547	157.9	208.7
1950					
Jan.	61.42	39.4	1.559	146.5	196.7
Feb.	63.86	40.6	1.573	149.2	198.4
Mar.	65.10	41.1	1.584	152.0	201.6
Apr.	67.21	41.8	1.608	155.4	204.6
May	68.57	42.3	1.621	158.3	207.2
June	69.93	42.9	1.630	162.9	212.6
July	71.16	43.1	1.649	161.5	212.0
Aug.	73.78	44.5	1.658	170.2	221.4
Sept.	74.38	44.3	1.679	181.3	233.1

Source: Bureau of Labor Statistics

8 METAL FACTS SECTION

Causes of Permanent Disabilities and Changes in Injury Rates by Industry

CHANGES IN INJURY RATES, 1935-1939 TO 1949

Index Numbers Above 100 Indicate Percentage Increases From Base Period; Below 100, Decreases

Industry	Base Period	Frequency Rate Index Numbers						Frequency Change	Severity Rate Index Numbers						Severity Change
		1941	1943	1945	1947	1948	1949	1948-49	1941	1943	1945	1947	1948	1949	1948-49
All Reporting Industries	1935-39	117	111	104	101	88	77	−12%	99	77	75	79	72	66	− 9%
Aircraft Manufacturing	1941	100	135	99	97	82	88	− 7%	100	157	193	137	147	133	− 9%
Air Transport	1942	...	169	131	126	116	100	−14%	...	180	114	141	125	25	−80%
Automobile	1935-39	72	98	98	96	81	61	−25%	79	78	77	81	80	70	−12%
Cement	1935-39	111	144	148	134	126	96	−24%	78	80	67	99	96	78	−19%
Chemical	1935-39	105	111	111	98	83	63	−24%	107	93	88	76	74	50	−33%
Clay Products	1935-39	168	184	105	131	106	121	+14%	129	174	83	180	153	226	+47%
Communications	1935-39	95	61	55	55	48	40	−16%	117	38	11	23	25	21	−17%
Construction	1935-39	105	80	77	94	84	78	0	74	78	69	81	77	66	−16%
Electrical Equipment	1935-39	101	125	111	105	97	84	−13%	86	83	76	78	78	66	−16%
Electric Utilities	1935-39	108	107	119	137	131	124	− 5%	78	94	78	100	88	99	+12%
Food	1935-39	99	133	140	126	111	99	−11%	114	102	110	102	96	79	−17%
Foundries	1935-39	89	112	92	105	88	58	−34%	91	108	130	92	119	98	−18%
Gas Utilities	1935-39	98	92	106	156	141	127	−10%	89	93	105	118	105	93	−11%
Glass	1935-39	84	128	108	125	109	91	−17%	68	111	112	90	66	63	− 4%
Leather	1935-39	115	124	98	121	112	102	− 9%	141	167	122	86	83	79	− 4%
Lumber	1935-39	98	97	119	110	90	88	− 3%	120	105	117	121	107	108	+ 1%
Machinery	1935-39	118	194	160	157	139	117	−16%	100	99	81	104	106	92	−13%
Marine Transportation	1935-39	161	205	238	118	104	96	− 7%	96	126	104	75	61	56	− 9%
Meat Packing	1935-39	61	99	115	86	69	49	−29%	118	89	75	62	53	100	+89%
Mining	1935-39	93	108	129	127	105	91	−13%	95	86	105	74	72	60	−17%
Misc. Iron and Steel Products	1935-39	127	120	116	100	107	95	−11%	129	97	113	80	101	88	−13%
Non-Ferrous Metals and Products	1935-39	128	190	166	136	118	116	− 2%	90	97	98	82	72	85	+18%
Petroleum	1935-39	86	94	105	96	90	77	−14%	88	79	81	81	71	63	−11%
Printing and Publishing	1935-39	105	149	133	117	105	72	−31%	70	152	82	128	86	46	−47%
Pulp and Paper	1935-39	104	129	123	110	91	67	−23%	99	102	85	83	68	61	−10%
Quarry	1935-39	143	137	79	137	153	140	− 9%	94	129	34	94	86	102	+19%
Railroad Equipment	1935-39	88	155	186	87	82	90	+10%	136	130	93	72	81	105	+29%
Rubber	1935-39	103	141	148	114	106	65	−39%	85	104	107	96	89	70	−22%
Service	1935-39	132	141	158	110	88	63	−29%	165	102	746	73	291	107	−63%
Sheet Metal Products	1935-39	109	79	126	96	74	69	− 9%	81	58	122	102	88	68	−22%
Shipbuilding	1935-39	185	226	148	145	96	84	−13%	94	101	83	157	80	92	+15%
Steel	1935-39	90	95	93	78	78	64	−15%	90	96	90	82	85	77	−10%
Textile	1935-39	134	177	158	116	118	104	−10%	91	131	117	93	100	98	− 2%
Transit	1935-39	95	129	170	166	114	99	−14%	75	87	97	88	63	49	−22%
Wood Products	1935-39	138	154	184	186	156	143	− 8%	99	125	170	189	145	126	−13%

Source: Individual company reports to the National Safety Council

UNSAFE ACTS AND CAUSES OF PERMANENT DISABILITIES

Deaths and Unsafe Acts (1937 to 1941 incl.) Broken Down For Ten Major Industries

Unsafe Act or Cause	All Industries*		Machinery	Steel	Sheet Metal	Metal Products	Non-Ferrous Metals	Chemical	Pulp and Paper	Food	Public Utility	Construction
	Number	Pct										
UNSAFE CONDITION												
Total Accidents	4,818	...	800	449	295	303	291	355	360	262	707	243
		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Hazardous arrangement or procedure	1,634	34	33	41	26	27	36	35	40	28	30	41
Improper guarding	1,214	25	22	22	36	24	21	22	28	26	30	18
Defective agencies	747	15	14	15	14	16	20	18	17	17	15	21
Unsafe dress or apparel	277	6	5	5	6	6	8	5	3	5	8	7
Improper illumination, ventilation	32	1	1	1	**	**	**	1	**	2	1	2
No unsafe condition	914	19	25	16	18	27	15	19	13	22	16	11
UNSAFE ACT												
Total Accidents	3,112	...	584	244	200	187	202	214	208	182	453	187
		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Unnecessary exposure to danger	796	25	25	27	20	21	31	24	31	29	22	30
Unsafe, or improper use of equipment	467	15	19	15	21	13	13	11	17	7	12	12
Working on moving or dangerous equip.	428	14	13	15	13	12	9	18	14	19	12	9
Non-use personal protective equipment	275	9	7	9	6	7	9	7	6	4	20	9
Improper starting or stopping	284	9	12	8	3	12	10	9	8	7	9	13
Overloading, poor arranging	214	7	7	9	5	4	6	8	10	5	5	9
Making safety devices inoperative	157	5	5	1	9	8	4	4	2	4	8	2
Operating at unsafe speed	93	3	7	2	3	4	2	3	3	5	2	5
No unsafe act	398	13	9	14	20	19	16	18	9	20	10	11

* Includes information from industries other than the ten for which detailed information is shown.
** Less than half of one per cent.

Source: National Safety Council

In the preceding pages of statistics every effort has been made to include important data useful to the metalworking and metalproducing industry. A similar effort has been made to exclude data which might be considered of minor importance. However, the editors will appreciate comments on the scope of the material so that any important omissions can be corrected in future issues.—The Editors.

This is your handy synopsis of regulations and revisions under the Defense Production Act of 1950—the act which provides authority for the government controls now being used to gear the nation for defense.

YOU YOU YOU and Government Controls

AUTHORITY for the economic controls in this section is contained in The Defense Production Act of 1950. Full text of the Act appears in the Congressional Record of Aug. 31, 1950. The Act gives the President powers over the following:

(1) *Priorities and allocations*
(2) *Authority to requisition*
(3) *Expansion of productive capacity and supply*
(4) *Price and wage stabilization*
(5) *Settlement of labor disputes*
(6) *Control of consumer and real estate credit*

The broad aim of the Act is to provide the President with authority to accomplish economic adjustments necessary to back up our defense effort.

Charles E. Wilson, heading the Office of Defense Mobilization, answers only to the President. William Harrison is top man in National Production Authority which administers the controls.

Accelerated Plant Amortization

The National Security Resources Board was expected to lose its authority to grant certificates of necessity for fast tax write-offs to Wilson's ODM. Previously Congress had voted NSRB authority to stimulate industrial growth for indirect and direct defense output. It made possible 5-year accelerated amortization of defense plants and equipment.

Early in November, 1950, application form S and regulations for 60-month write-offs were distributed by NSRB for the first time since World War II. Business was thus able to apply for Certificates of Necessity—or permission to amortize facilities in the shortened span.

ODM will take NSRB's function of serving primary clearing house for applications, sorting them to governmental agencies for recommendations, and then making final decision. Certificates will not be issued for used or existing property unless a substantial increase in output for defense cannot be achieved in any other way.

Fast write-offs can be obtained on plants and facilities constructed or installed after Dec. 31, 1949. Applications for necessity certificates for facilities on which construction, reconstruction, or installation is begun or which are acquired after Sept. 23, 1950, must be filed within 6 months after construction begins or facilities are acquired. Mar. 23, 1951, is the filing deadline for facilities started or acquired on or before Sept. 23.

Applications are available at room 5803, Commerce Dept., Washington 25, D. C.; at 1725 F Street, N.W., Washington, D. C.; and at field offices of the Dept. of Commerce (see p. 374). Amortization deductions may be taken instead of depreciation and may be discontinued, with depreciation resumed, before the 5-year write-off period ends. Gains from the sale or exchange of property, to the extent that the adjusted basis is less than the adjusted basis determined without regard to accelerated depreciation shall be considered ordinary income.

Frank R. Creedon, ex-housing expediter, was named to pass on applications received by the NPA for fast tax write-offs. His Facilities Clearance Staff was assigned the processing of Certificates of Necessity handed to NPA.

Fast write-offs can be denied if it is felt that they will not foster competition or if it is believed a firm's management or financing is unsound.

Defense Loans

Government machinery to speed and aid defense production was set into action in December when NSRB untied the purse strings on a potential loan kitty of $2 billion. Passed by Congress in September, total amount borrowed at any one

time may not exceed $600 million. But Congress authorized appropriated funds of an additional $1.4 billion.

Loans will be granted when an applicant is unable to get funds from private or public sources. Field offices of certifying agencies—Depts. of Commerce, Agriculture, and Interior, and the Defense Transport Administration—will transmit applications to Washington. When dealing with non-certifying agencies, such as the Air Force, applicants may submit forms to them for transmittal to proper agencies in Washington.

Loans will be made *only* to further production on defense contracts. Application forms are available at field offices of certifying agencies. It is expected that ODM will also take over NSRB's administrative function here.

HOW TO APPLY OR EXTEND A DO RATING

Complete rules for applying or extending DO ratings may be found in Reg. 2 as amended Nov. 16, 1950.

When a person applies or extends a rating he must put the prefix DO and the two digits supplied to him, for example DO 39, on his purchase order, or on a separate piece of paper clearly identifying it. He must also add the words, "Certified under NPA Regulation 2".

This certificate is your representation that you are authorized to use the rating for delivery of materials covered by the order. Certificates must be signed by person placing the order or by a responsible person duly authorized to sign.

NPA Regulations

NPA Reg. 1, Inventory Control

Inventories of numerous steel and metal items must be held to a "practicable working minimum" under this order, effective Sept. 18. The order applies to all buyers and sellers for either production or resale for export. National stockpiling, purchasing for personal consumption are not involved.

Importing is unrestricted, but importers may not place domestic orders for the period such imports lift inventories above normal. Materials produced or marketed in minimum quantities may be ordered over permitted inventory levels temporarily. Orders should be regulated for a balance between production and inventory. Firms which historically pile up seasonal stocks must do so normally.

Suppliers may not ship to customers if the supplier knows that the customer is not entitled to deliveries. All stocks, even those held by others in account, must be figured in inventory. Excess inventories are subject to requisition under the Defense Production Act. Special items, those the supplier does not usually make, stock, sell, or which are difficult to dispose of, may be delivered in excess of inventory.

The initial list on which working inventory restrictions apply includes: *steel, iron, aluminum, copper, tin, nickel, zinc, tungsten, manganese, magnesium, columbium, cobalt, chemicals, rubber, and miscellaneous.* (For product breakdown, see THE IRON AGE, Sept. 21, p. 114.)

NPA Reg. 2, DO Priorities

Equal precedence to all defense orders, including atomic energy procurement, was made effective on Oct. 3 in NPA Reg. 2. Ore, scrap, foods, fuel, and electric power were omitted. A single rating with no degree of preference was authorized. Issuance of DO ratings will be through the procurement services of the Defense Dept. and Atomic Energy Commission.

Firms will give precedence to orders received first. If orders are received on the same date, precedence will be given to the order with the earliest delivery date. A rated order calling for earlier delivery than a rated order already accepted must not interfere with scheduled delivery of the accepted order. If both orders can be filled on schedule, it is not necessary to deliver the first order ahead of the second.

The date on which sufficient specifications have been furnished to the producer will usually be construed as the receiving date for the order. Cancellation of a rated order or a rating applicable to an order when the supplier has material in production to fill it, need not mean that he halt processing to go to other DO orders. He may continue processing material for the cancelled order to a "stage of completion that will avoid a substantial loss of total production."

But he may not incorporate materials needed for other rated orders and may not postpone other rated orders for more than 15 days. Rated orders for delivery of materials may be extended in most cases to obtain the material or items which will be physically incorporated in the material to be delivered. This includes containers and packaging items.

A person "losing" material which was delivered on a DO order may extend the rating for its replacement. To apply and extend ratings,

the producer must label the order with a DO rating and with two digits supplied to him. He must put on it "certified under NPA Reg. 2" and the signature of the person placing the order.

Interpretation 1 to Reg. 2—The Dept. of Defense and the Atomic Energy Commission may assign suppliers of petroleum and food the right to apply DO ratings to secure drums, cans and other containers required for delivery, under an interpretation to NPA Reg. 2 (applying to steel). The ratings may be used only to secure minimum quantities of containers to fill specific defense orders.

NPA M-1, Steel

This order clarifies handling of steel orders under NPA Reg. 2. Steel producers need not accept orders received less than the specified number of days (lead time) before the first day of the month in which shipment is requested.

Unless ordered by NPA, producers need not accept DO orders for shipment in any one month in excess of certain specified percentages based on shipments for the 8-month period, January-August 1950.

Percentages of DO orders which producers must accept and lead time on the various products are subject to change. For latest revisions write to National Production Authority, Commerce Building, Washington 25, D. C.

Producers need not accept surplus orders in any month if the total exceeds specified percentages. In such case it is up to the government to find a producer to fill the order.

Supplement 1 to M-1—The first defense support program, issued as Supplement 1 to M-1, directs industry to provide 310,000 tons of steel a month during the first quarter of 1951 to support a 10,000 per month freight car construction program. Repair and maintenance are included.

Steel obtained must be used only for repair and construction of freight cars. Steel shipped on these orders cannot be counted as produced under rated orders for determining percentages of defense production as set forth in Sec. 20.5 of M-1.

Supplement 2 to M-1—Allocation of 10,000 tons of steel monthly for the first quarter of 1951 for construction of nine Great Lakes ore carriers, two freight car ferriers and a limestone carrier is provided for in Supplement 2. Operating provisions are similar to the freight car program, including a required lead time of 45 days on orders.

Supplement 3 to M-1—Provides 8000 tons of steel monthly for Canadian freight car production.

NPA M-2, Rubber

This order restricts civilian consumption of natural rubber to a designated percentage of consumption during the base period which is the year ended June 30, 1950. During November civilian users were allowed 75 pct of their consumption during the base period. During December the civilian allowance was cut to 63 pct.

NPA M-3, Columbium Steels

All columbium-bearing stainless steel must be set aside to meet DO-rated orders issued by the Defense Dept. and the Atomic Energy Commission. This order went into effect on Oct. 19, 1950, and also provides that no ferrocolumbium-bearing steel shall be used for any product if ferrocolumbium-tantalaum bearing steel can be substituted.

Neither type of steel may be used if a substitute can be found for the latter.

NPA M-4, Construction Ban

Aim is to conserve materials by prohibiting construction which does not further the defense effort.

The order, effective Oct. 27, bans construction of buildings for amusement, recreational or entertainment purposes. It does not apply to construction already started at that time or to planned construction which will not cost more than $5,000. Also exempted are Defense Dept. and Atomic Energy Commission Projects.

This order should not be confused with Regulation X which increases down payments and shortens loan terms of Federal Housing Administration and Veteran's Administration loans for housing.

NPA M-5, Aluminum Distribution

This order established percentages and rules for handling DO orders on aluminum, and it ap-

Metalworking Form

Metalworking plants will soon have to file their first major form with National Production Authority. Similar to the old WPB "input-output" form, it is designed to give NPA complete data on materials input, man-hours worked, and output by product.

The form has already been discussed with industry representatives. Data on the fourth quarter of 1950 by Jan. 25, 1951 is the present target. Filing of the form will be on a regular quarterly basis after that.

Data compiled from this form will be used to check on inventory control and the use of critical materials.

plies to both primary and secondary production.

Primary producers must accept rated orders from independent fabricators up to 6½ pct of monthly scheduled production of primary pig and ingot. Ceilings were set for mandatory acceptance of rated orders.

Provision is also included for NPA to establish special programs (such as the steel freight car program) calling for rated orders. Producers and fabricators need not accept rated orders received less than 60 days before the first of the month in which shipment is asked.

NPA M-6, Warehouses

Primary purpose is to assure steel for small users. Steel producers must allot warehouse customers proportionate percentages of each steel product, based on average monthly shipments during the first 9 months of 1950.

Allotments will be made out of steel available after mills have met defense and other essential requirements. Producer does not have to take orders which are not for "substantially the same products," that is, which vary by other than minor differences in size and design.

Order also sets following ceilings on amounts of steel orders warehouses must accept from one customer at a time:

Carbon steel	*8000 lb*
Alloy (except stainless)	*5000 lb*
Stainless bars, plates	*1000 lb*
Stainless tubing, pipe	*1000 lb*

Distributor is not required to make deliveries totaling 40,000 lb or more at any one time, unless delivery includes 10 or more items, none of which exceed above limits.

Also, the order prohibits extension of a DO rating to obtain steel products for sale or resale in same form received except to replace items shipped from stock on DO orders.

The order was amended to cover Canadian warehouses.

NPA M-7, Aluminum Cutback

Use of aluminum for manufacture of non-defense goods is to be reduced in January to 80 pct of the average monthly consumption of the first half of 1950; February use will be cut to 75 pct of the same base; and, as of Mar. 1, nonessential consumption is limited to 65 pct of the base period. Use of aluminum for these purposes was restricted in December, 1950, to 100 pct.

Inventory restrictions are also imposed, limiting stocks to a 60-day supply or a practical working minimum, whichever is less.

Businesses using less than 1000 lb per year are exempt. Pending development of power requirements, the order does not apply to contracts placed prior to the order for delivery before April of aluminum conductor cable, wire or bus-bar for production or transmission of electricity.

It has been emphasized that the order applies to users of aluminum products and forms and does not limit production or conversion, or use in the production of other metals.

Direction 1 to NPA M-7 — This supplements order M-7 by providing for four types of adjustments which may be allowed for new businesses, changes in products, seasonal factors and, where the base period was affected by shutdowns of 15 days or more.

NPA M-8, Tin Inventories

Effective Nov. 13, 1950, possession of tin in any raw, semifinished or scrap form, or any alloy or compound in which tin is of chief value, is limited to a 60-day supply or a practical working minimum, whichever is less.

Use of tin for civilian goods is cut to 80 pct of the base period as of Feb. 1 and new tin is not to be used wherever secondary metal can be substituted. Tinplate manufacturers stocks of pig tin are limited to a 120 day supply.

The order applies to any product which contains 1.5 pct or more of tin.

NPA M-9, Zinc Distribution

This order is similar to M-5 in objective and scope.

The order took effect Nov. 16, 1950, and calls for a 30-day lead time. It goes on to state that no producer of zinc, zinc dust or zinc oxide will have to accept rated orders for shipment over 10 pct of his total scheduled production of these items during that month.

Fabricators do not have to ship anything on DO orders in excess of the following percentages: Zinc base alloys, 20 pct; zinc sheet, strip, wire, rod, shapes (rolled, drawn and extruded), and plates, 15 pct.

Without specific NPA direction, no dealer need accept rated orders in excess of 15 pct of the total zinc, zinc dust, zinc oxide and zinc products which are available to him during any one month.

NPA also provided for the setting up of production and delivery programs when needed. Provisions are also included for the assistance of those who have trouble in placing DO orders, for adjustments and exceptions, communications, reports and violations.

NPA M-10, Cobalt Stocks

Beginning Nov. 30, cobalt inventories were limited to a 30-day supply and the sole importer of the metal was directed how to allocate his December supply.

December non-defense use was limited to 60 pct, an increase from the 30 pct of the previous month. At this writing, the NPA was discussing

DEFENSE ORDER NUMBERS

Department of Defense:

DO-01 Aircraft
02 Guided Missiles
03 Ships
04 Tanks, Automotive
05 Weapons
06 Ammunition
07 Electronic and Communications Equipment
08 Fuels and Lubricants
09 Clothing and Equipage
10 Transportation Equipment
11 Building Materials and Equipment for Overseas (troop) Construction
21 Miscellaneous
22 Department of Defense Construction Contract
98 Production, Equipment for Certain Contractors
99 Miscellaneous—as referred to in Regulation 2 Sect. 11.9

Atomic Energy Commission:

DO-40 Operations
41 Construction
42 Construction Equipment

U. S. Coast Guard:

DO-60A Automotive
DO-60B Electronic and Communications Equipment
60C Aids to Navigation
60D Clothing, Small Stores
60E Miscellaneous Stock
61 Material for Aircraft
62 Construction on Shore Projects
63 Material for Ready-Built Ships

longer range plans for cobalt with cobalt consumers.

NPA M-11, Copper Distribution

NPA's purposes in this order were twofold: (1) to provide necessary supplies for defense needs and (2) to maintain equitable distribution among all users for that copper remaining after military requirements are met.

Percentage ceilings on the required acceptance of DO orders for copper, based on average monthly shipments during the first 6 months of 1950, are: Brass mill products, 20 pct; copper wire mill products including copper rods, cable and insulated wire, 5 pct; foundry and copper-base alloy products, 10 pct. Limits up to 25 pct are placed on certain products within these groups.

Distributors and jobbers have identical ceilings and base period except the distributors and wholesalers of wire mill products whose base is the preceding monthly inventory period.

A 45-day lead time is provided by this order, which is effective as of Jan. 1, 1951.

NPA M-12, Copper Cutback

Nonessential civilian use of copper is restricted by this order as follows: Production and use of wire mill products by total weight, 85 pct in January and February, 1951, and 80 pct in March; foundry products, 100 pct. The base period for these figures is January to June, 1950.

The order applies to all unalloyed copper and brass alloy, including scrap. It applies to all producers and users including copper or copper-base alloy (40 pct or more copper content) in production of other metals and alloys. Those who use less than 1000 lb of copper per calendar quarter are exempt. Use of copper for maintenance, repair and operating supplies is permitted up to 100 pct of the base period.

Producers' stocks are limited to a 45-day supply or a practical working minimum whichever is less, and users are restricted to 60-day inventories.

NPA M-13, Rayon

Producers of high tenacity rayon yarn need not accept priority orders received less than 30 days prior to first day of month in which shipment is requested. No producer need accept priority orders for any month in excess of 10 pct of his scheduled production.

NPA M-14, Nickel Cutback

Non-defense use of primary nickel for the first quarter of 1951 is cut back to 65 pct of the quarterly average of the first half of 1950. The order applies to electrolytic nickel, ingots, pigs, rolled and cast anodes, shot, oxides and residues derived directly from nickel. Those who consume less than 250 lb per quarter are exempt and use for maintenance, repair and operating supplies is allowed at 100 pct of the base period.

Inventories are restricted to a 30-day supply or a practical working minimum, whichever is less.

NPA M-15, Zinc Cutback

This order limits first quarter 1951 zinc consumption for non-defense purposes to 80 pct of the average use during the first 6 months of 1950. Inventories are set at 45 days or a practical working minimum, whichever is less.

Any zinc produced by electrolytic, electrocthermic or fire refining processes, including scrap and other secondary metal, and any alloy containing 50 pct zinc by weight are included in this order. Zinc products specified include sheet, strip or ribbon, rod, wire, castings, plates, and shapes either drawn or extruded.

Two specific exemptions are provided: (1) Users of less than 3000 lb per quarter and (2) Highly specialized uses as well as zinc substituted for cadmium in electroplating. Maintenance and repair use are permitted at 100 pct of the base period.

NPA M-16, Copper Scrap Controls

Scrap dealer inventories are limited to one third (by weight) of total delivery in the first

half of 1950 and mills are directed not to accumulate "excess" stocks of mill scrap.

Acceptance and delivery of copper scrap is confined to scrap dealers, refiners, brass mills, brass and bronze foundries, ingot makers and other producers who regularly use scrap copper in their normal operations.

Melting and other processing of mill scrap is limited to the mills themselves and sale of mill scrap is forbidden except through regular channels. Conversion or toll agreements are also made illegal in this order which covers all copper and copper-base alloy scrap containing 40 pct or more copper by weight.

Exceptions to any of the above regulations may be made only with specific NPA direction or approval.

NPA M-17, Electrical Equipment

Aim is to spread priority orders evenly among makers of certain kinds of electrical equipment. Order says makers of insulating washers, electronic tubes and fixed composition resistors must provide as much as 15 to 50 pct of their output for DO orders. They may refuse orders which would raise their total DO orders above these limits, though they aren't required to.

Personnel—Iron & Steel Division

NATIONAL PRODUCTION AUTHORITY, COMMERCE BUILDING, WASHINGTON 25

Phone Sterling 9200—Extension Indicated

		Room	Phone Ext.
Director	D. B. Carson Sharon Steel Corp.	3830A	4455 4456 4346 4347
Ass't. Director	F. T. McCue Chief, Iron & Steel Div., Dept. of Commerce	3323	3962 2369 2328
Staff Assistant	J. Levin	3323	2273
Staff Assistant	R. X. McGowan	3327	3349
Staff Assistant	E. S. Moorhead	3819	3483
International Economist	J. J. W. Palmer	3319	2263
Staff Economist	R. M. Weidenhammer	3323	2214
Legal Counsel	R. Bronson	5121	4621

Sections

Stainless Steel	C. B. Boyne, Chief Allegheny Ludlum Steel Corp.	3827	3323
Pig Iron	J. A. Claussen, Chief American Iron & Steel Inst.	3825	2343
Alloy & Cold drawn Bar	L. E. Creighton, Chief Rotary Electric Steel Co.	3827	3323
Rails & Accessories	J. J. Davis, Jr., Chief Inland Steel Co.	3819	3217
Program	C. Halcomb, Chief	3823	3152 3171
Pipe & Tube	A. P. Happer, Chief National Tube Co.	3316	2437 4437
Priorities & Statistical Control	K. H. Hunter, Chief	3329	3974
Plant Expansion	H. L. Leyda, Chief General Steel Co.	3309	3140
Tin Plate	A. M. Long, Chief Youngstown Sheet & Tube Co.	3825	3334
Structural Shapes	R. A. Marble, Chief Carnegie-Illinois Steel Corp.	3324	2767 2988
Wire	N. F. Melville, Chief Pittsburgh Steel Co.	3819	4656
Plate	W. E. Mullestein, Chief Lukens Steel Co.	3324	2767
	W. E. Bossert, Ass't. Chief Alan Wood Steel Co.		2988
Sheet & Strip	W. B. Quail, Chief Armco Steel Corp.	3320	2529 2700
Bars & Unfinished	J. W. Robinson, Chief Jones & Laughlin Steel Corp.	3326	3310 3151
Warehouse	A. Y. Sawyer, Chief Jos. T. Ryerson & Son, Inc.	3312	2050 2681
	Russell Link, Ass't. Chief Central Steel & Wire Co.	3312	2050
Forgings	H. F. Weaver, Chief Bethlehem Steel Corp.	3310	2004
	J. E. Sweeney, Ass't Chief Kropp Drop Forge Co.		2609
Castings	A. J. McDonald, Chief American Steel Foundries	3315	4520
Ferroalloys	James H. Critchett, Chief Electro Metallurgical Co.	3315	4455
Scrap	Marvin Plant, Chief H. Klaff Co.	3315	4520
Refractories	Marguerite Saurs, Chief General Refractories Co.		
Metallurgical & Technical	Col. Charles McKnight, Chief Aberdeen Proving Grounds		

GOVERNMENT PROCUREMENT

Major Metal Products Bought by the Armed Forces and Where They are Bought

These major products of the metalworking industry are bought by the military. Numbers at the right refer to the buying offices listed on the following pages. To sell any of these items write the appropriate office. If your product is not listed here write the Central Military Procurement Information Office, Munitions Board, Pentagon, Washington 25, D. C.

A

Aerial bombs, AP, depth.....13, 18
Aerial bombs, general, frag., etc. 13
Agricultural machinery and implements..... 2
Air conditioning and refrigeration equipment, 1, 2, 11, 15, 22, 30
Aircraft assemblies, components, propellers.15, 17, 20
Airplanes 15, 17
Ammunition, artillery, complete.....13, 18
Ammunition, artillery, components.....4, 13, 18
Ammunition, small arms 4
Artillery, naval guns & mortars (cal. .60 and over) 5, 6, 7, 8, 18

B

Bituminous mixing, paving, and related equipment 2
Boats and accessories 2, 15, 19
Bomb fuzes 13, 18

C

Catapults, beaching gear 17
Cement handling and placing machinery and equipment 21
Communication and related equipment 12, 19, 20, 23, 26
Component parts and subassemblies, attachments and accessories for metalworking machinery.. 16
Compressors and pumps.....16, 19, 21, 28
Computing devices, sights (except bomb sights).4, 18
Concrete mixing, paving, placing, and related equipment 21
Containers and closures 20, 22, 24
Contractors' crawler carts, wagons, and trailers (full or half-track) 2
Contractors' jacks, supports for trench sidewalls, concrete forms, and related uses..... 21
Conveying, elevating and materials handling equipment 16, 21
Crushing, pulverizing, and screening machinery. 21
Cutlery, industrial 16
Cutting and forming tools for metal working machinery 16

D

Domestic water systems 21
Dredging machinery and components, except hulls 2

E

Electric distribution and control equipment 2, 16, 19, 20, 27, 28, 30
Electric generators and motors.....2, 16, 19, 28
Explosives, HE 13, 18

F

Files, rasps and other hand tools..... 16
Fire control equipment 4, 18
Fire fighting equipment 2, 15
Foundry equipment, except furnaces and ovens 16, 22
Fuel burning equipment 2, 3
Furniture and fixtures (incl. shelving and lockers) 16, 30

G

Gages, levels, micrometers, etc. 16
Graders and maintainers 21
Grenades and components..... 13
Gun mounts, etc. (except aircraft).....5, 14, 18

H

Household electrical appliances 16

I

Industrial furnaces, kilns, lehrs, and ovens..... 30
Identification plates, badges, emblems, tags, and military insignia 10
Insulated wire and cable.....20, 23, 26, 27
Iron and steel products.....16, 20

J

Jigs, fixtures and metalworking accessories, except machine accessories 16

K

Kitchen utensiles, tools and cutlery; and tableware, except flatware and hollow ware.....11, 33

L

Landing vehicles (not tracked)..... 14
Landing vehicles, tracked 19
Lighting fixtures 16, 20 21, 27, 30, 31, 32
Lighting fixtures, automotive 14
Lighting fixtures, R. R. 3
Loaders, self-propelled, positive-feed..... 2
Locomotives, wheels and parts 3
Logging equipment 2

GOVERNMENT PROCUREMENT CONTINUED

M

Machine guns 5, 6
Machine tools 16
Map reproduction equipment 2
Materials handling equipment 16, 21, 25
Mechanical power transmission equipment, including bearings 16, 19, 20, 28, 30, 31, 32
Mess and galley utensils 11
Metal fabricated basic products..... 16
Metalworking machinery 16
Mines, aerial and naval..... 18
Mining machinery and equipment 2
Motor vehicles 14
Motor-vehicle type maintenance and repair equipment 14
Musical instruments 10

N

Nonferrous metals, basic shapes and forms..... 16

O

Office machines and equipment.....16, 30, 31, 32
Oil field producing equipment 21
Optical sighting and ranging equipment..... 4

P

Packing and gaskets 20, 30
Photographic equipment and supplies..... 15
Plumbing, heating, and miscellaneous equipment 2, 3, 11, 20, 30
Pontoons and pontoon components (Navy-type). 21
Portable machine tools 16, 20
Power driven hand tools 16
Power excavators and attachments (track-laying only) 21
Power excavators and attachments (wheelmounted only) 2
Prefabricated buildings and panels; and ready cut buildings 21
Primary metal forming and finishing machines and equipment 16

R

Rail and track accessories 2
Railroad construction and maintenance equipment, power-driven, except railroad-car mounted.... 2
Rifles, revolvers, etc. 6
Road and pavement clearing and cleaning equipment, except tractor and truck attachments... 21
Road and pavement repair, marking, leveling, and demolition equipment 2
Rock-drilling, earth-boring, and related machinery 2
Rockets, assembled (5-in. and over).....13, 18
Rockets, assembled (5-in. and under).....13, 18

S

Sawmills 2
Saws, hand 16
Scaffolding, adjustable and demountable..... 2
Scrapers 2
Secondary metal forming and cutting machines and equipment 16
Self-propelled weapons 9, 14
Ships, combat and landing vessels..... 19
Shovels, picks, etc. 16
Small arms (cal. .60 and under).....5, 6
Stabilizing, compacting, and soil-preparation equipment for roads and streets..... 2
Surveying and mapping equipment....2, 15, 20, 30

T

Tanks, complete 14
Hand tools, edge (drills, chisels, etc.)..... 16
Hand tools, except edge (shovels, picks, etc.)... 16
Tools, hand 16
Tools, mechanics' measuring 16
Tractors (civilian types) 2
Tractors, contractors' (special design only)..... 2

V

Valves, pipe fittings and piping specialties, except plumbing specialty and radiator valves....19, 20

W

Watches, clocks 4, 20
Water and sewage treatment equipment..... 2
Welding machinery and equipment..... 16
Wrenches, pliers, screwdrivers, etc. 16

Armed Forces Buying Offices

Numbers at left refer to purchased products in list above.

1. Armed Services Medical Procurement Agency
   84 Sands Street
   Brooklyn 1, N. Y.

2. Chicago Procurement Office
   Corps of Engineers
   226 West Jackson Boulevard
   Chicago 6, Ill.

3. Commanding Officer
   Marietta Transportation Corps Depot
   Marietta, Pa.

4. Commanding Officer
   Frankford Arsenal
   Philadelphia, Pa.

5. Commanding Officer
   Rock Island Arsenal
   Rock Island, Ill.

6. Commanding Officer
   Springfield Armory
   Springfield, Mass.

Armed Forces Buying Offices (Continued)

7. Commanding Officer
Watertown Arsenal
Watertown, Mass.

8. Commanding Officer
Watervliet Arsenal
Watervliet, N. Y.

9. Commanding Officer
Detroit Arsenal
Center Line, Mich.

10. Commanding General
New York Quartermaster Purchasing Office
111 East 16th St.
New York 3, N. Y.

11. Commanding Officer
Chicago Quartermaster Purchasing Office
1819 West Pershing Road
Chicago 9, Ill.

12. Commanding Officer
Signal Corps Procurement Agency
2800 South 20th St.
Philadelphia 45, Pa.

13. Ordnance Ammunition Center
Joliet Arsenal
Joliet, Ill.

14. Ordnance Tank & Automotive Center
1501 Beard St.
Detroit, Mich.

15. Procurement Division
Air Materiel Command
Wright-Patterson Air Force Base
Dayton, Ohio

16. Officer in Charge
Navy Purchasing Office
Department of the Navy
Washington 25, D. C.

17. Bureau of Aeronautics
Department of the Navy
Washington 25, D. C.

18. Bureau of Ordnance
Department of the Navy
Washington 25, D. C.

19. Bureau of Ships
Department of the Navy
Washington 25, D. C.

20. Aviation Supply Officer
Aviation Supply Office
400 Robbins Ave.
Philadelphia 11, Pa.

21. Yards and Docks Supply Officer
Yards and Docks Supply Office
U. S. Naval Construction BN Center
Port Hueneme, Calif.

22. Officer in Charge
Navy Purchasing Office
111 East 16th St.
New York 3, N. Y.

23. Officer in Charge
Navy Purchasing Office
844 North Rush St.
Chicago 11, Ill.

24. Officer in Charge
Navy Purchasing Office
180 Montgomery St.
San Francisco, Calif.

25. Officer in Charge
Navy Purchasing Office
1206 South Santee St.
Los Angeles, Calif.

26. Electronic Supply Officer
Electronic Supply Office
Great Lakes, Ill.

27. Commander
U. S. Naval Shipyard
Portsmouth, N. H.

28. Supply Officer in Command
Naval Supply Depot
Mechanicsburg, Pa.

29. Officer in Charge
U. S. Navy Ship Store Office
29th and 3rd Ave.
Brooklyn 32, N. Y.

30. The Quartermaster General
Headquarters USMC
Washington, D. C.

31. Depot Quartermaster
MC Depot of Supplies
1100 South Broad St.
Philadelphia, Pa.

32. Depot Quartermaster
MC Depot of Supplies
100 Harrison St.
San Francisco, Calif.

33. Headquarters
Army Quartermaster Market Center
226 West Jackson Boulevard
Chicago 6, Ill.

U. S. Dept. of Commerce Field Offices

Alabama
Atlanta 1, Ga., 30 Whitehall St., SW.
Mobile 10, 109 St. Joseph St.

Arizona
Phoenix 8, 234 N. Central Ave.

Arkansas
Memphis 3, Tenn., 229 Federal Bldg.

California
Los Angeles 12, 312 N. Spring St.
San Francisco 11, 555 Battery St.

Colorado
Denver 2, 828 17th St.

Connecticut
Hartford 1, 135 High St.

Delaware
Philadelphia 2, Pa., 42 S. 15th St.

Florida
Jacksonville 1, 311 W. Monroe St.
Miami 32, 36 NE 1st St.
Mobile 10, Ala., 109 St. Joseph St.

Georgia
Atlanta 1, 30 Whitehall St. SW.
Savannah, 125 Bull St.

Idaho
Portland 4, Oregon, 520 SW Morrison St.
Seattle 4, Wash., 909 1st Ave.

Illinois
Chicago 4, 332 S. Michigan Ave.
St. Louis 1, Mo., 1114 Market St.

Indiana
Chicago 4, Ill., 332 S. Michigan Ave.
Louisville 2, Ky., 631 Federal Bldg.

Iowa
Chicago 4, Ill., 332 S. Michigan Ave.

Kansas
Kansas City 6, Mo., 911 Walnut St.

Kentucky
Cincinnati 2, Ohio, 105 W. 4th St.
Louisville 2, 631 Federal Bldg.

Louisiana
New Orleans 12, 333 St. Charles Ave.

Maine
Boston 9, Mass., 2 India St.

Maryland
Baltimore 2, 103 S. Gay St.

Massachusetts
Boston 9, 2 India St.
Providence 3, R. I., 24 Weybossett St.

Michigan
Detroit 26, 230 W. Fort St.

Minnesota
Minneapolis 1, 401-2nd Ave. S.

Mississippi
Mobile 10, Ala., 109 St. Joseph St.

Missouri
Kansas City 6, 911 Walnut St.
Memphis 3, Tenn., 229 Federal Bldg.
St. Louis 1, 1114 Market St.

Montana
Butte, 14 W. Granite St.

Nebraska
Omaha 2, 1319 Farnam St.

Nevada
Reno, 111 W. 2nd St.

New Hampshire
Boston 9, Mass., 2 India St.

New Jersey
Newark, 325 Industrial Bldg., 1060 Broad St.
New York 4, N. Y., 42 Broadway.
Philadelphia 2, Pa., 42 S. 15th St.

New Mexico
Albuquerque, 203 W. Gold Ave.
El Paso 7, Tex., 310 San Francisco St.

New York
Buffalo 3, 117 Elicott St.
New York 4, 42 Broadway.

North Carolina
Atlanta 1, Ga., 50 Whitehall St., SW.
Charleston 3, S. C., 18 Broad St.

North Dakota
Minneapolis 1, Minn., 401-2nd Ave. S.

Ohio
Cincinnati 2, 105 W. 4th St.
Cleveland 14, 925 Euclid Ave.

Oklahoma
Oklahoma City 2, 102 NW 3rd St.

Oregon
Portland 4, 520 SW Morrison St.

Pennsylvania
Philadelphia 2, 42 S. 15th St.
Pittsburgh 19, 700 Grant St.

Rhode Island
Providence 3, 24 Weybossett St.

South Carolina
Charleston 3, 18 Broad St.

South Dakota
Minneapolis 1, 401-2nd Ave. S.

Tennessee
Atlanta 1, Ga., 50 Whitehall St., SW.
Memphis 3, 229 Federal Bldg.

Texas
Dallas 2, 1114 Commerce St.
El Paso 7, 310 San Francisco St.
Houson 14, 602 Federal Office Bldg.

Utah
Salt Lake City 1, 350 S. Main St.

Vermont
Boston 9, Mass., 2 India St.

Virginia
Richmond 19, 801 E. Broad St.

Washington
Portland 4, Ore., 520 SW Morrison St.
Seattle 4, 909-1st Ave.

West Virginia
Cleveland 14, Ohio, 925 Euclid Ave.
Pittsburgh 19, Pa., 700 Grant St.

Wisconsin
Milwaukee 1, 517 E. Wisconsin Ave.

Wyoming
Cheyenne, 304 Federal Office Bldg.

news of industry

Seek OK for New England Mill Fast Tax Writeoff

Project to cost $250 million . . . Door left open for major steel producer to back project . . . Expansion of metalworking capacity in New England forecast—*By George Baker.*

Washington — Rapid amortization plans for a 1,000,000-ton New England steel mill were ready for government approval this week.

The National Security Resources Board said it had been asked to expedite the application of the New England Development Corp. for fast tax writeoff of the proposed plant and equipment.

Officials of NEDC said financing of the $250 million project had not yet been settled. They hinted they were "holding the door open" for a "major steel producer" to join with them in backing the project, but indicated they would seek funds from the Reconstruction Finance Corp. if private capital were unavailable.

To Enlarge Port Facilities

Alfred C. Neal, vice-president of the Boston Federal Reserve Bank and a consultant for the New England Council, NEDC's parent organization, said the new integrated mill would be built on a 600-acre site between New London and Waterford, Conn. Plans are already underway for enlargement of port facilities south of Waterford, he said.

Clifford S. Strike, NEDC President, said in a letter to NSRB chief Stuart Symington accompanying the tax application that his company was "firmly committed" to the principles that (1.) The proposed mill should be privately operated, and that (2.) a "presently-operating" steel company should have preference as operator.

"Our purpose is still to join with a presently operating steel company in the design, construction, ownership and operation of the mill for which application is made, but if that course should fail, to proceed with the establishment of an independent company," Mr. Strike declared.

Advantages of Mill

Predicting a "substantial expansion" of new fabricating capacity in New England as a result of establishing the new mill, Mr. Strike said such expansion would occur at "minimum cost to the economy" because of the existing availability of labor, housing, and community facilities in the New London-Waterford area.

Sen. McMahon, D., Conn., predicted last week that the proposed mill would "not only command an adequate market for its products," but also enjoy a cost advantage of raw materials.

Coal, he said, would be shipped from West Virginia and would cost no more delivered at New London than to the steel mills of Chicago. The principal source of ore would be the Labrador deposits, from which ore would cost less delivered by water at New London than by rail-haul to Pittsburgh and Youngstown, he said.

Gray Market Control

Washington — NPA moved last week to strengthen its control over supplies of critical materials and to put the finger on gray marketeers.

It issued a long list of materials which may not be accumulated in excess of reasonable needs whether for business, home, or personal consumption. It also forbids such accumulation for resale at more than the prevailing market price.

The list includes primary and semi-fabricated iron and steel, including pig iron, castings, forgings, and scrap, pressure and soil pipe, wire and rod, and primary and secondary aluminum.

Other materials in both basic and other forms, including alloys, are tin, copper, zinc, antimony, cadmium, cerium, chromium, cobalt, columbium, magnesium, manganese, mica, molybdenum, nickel, platinum, tantalum, tungsten, vanadium, industrial diamonds, and nonferrous scrap.

Swedish Steel Expands

Stockholm—A new mill producing hot-rolled strip up to 12 in. wide has been started at the Sandviken works in Sweden. It will have an annual capacity of about 20,000 tons. A tube mill with a capacity of 10,000 tons annually will be put into production soon. Cold-rolling mill capacity at Sandviken is being expanded.

INDUSTRIAL SHORTS

BRANCH STORE — A new factory branch store in Pittsburgh has been opened by the LINK-BELT CO. Otto W. Werner is district manager in the new store, which will stock all popular Link-Belt transmission and materials handling products.

ANOTHER PLANT — A $600,000 plant will be built on Egbert Road in Cleveland by the S. K. WELLMAN CO., manufacturers of Velvetouch friction linings. The plant will have its own railroad siding and will be completed next summer.

EXPANDING—A new plant is being constructed in Butler, Pa., by the AIR REDUCTION SALES CO. for the manufacture of oxygen and nitrogen. The plant is expected to be in operation the latter part of 1951.

TAKES OVER — The Anker-Holth Mfg. Co., Port Huron, Mich., manufacturers of hydraulic and air operated cylinders, chucks and collets, air valves and accessories, has been purchased by the WELLMAN ENGINEERING CO., Cleveland. J. C. Hodge, executive vice-president of Wellman, will supervise the operation of this new acquisition to be known as the Anker-Holth Div.

NEW MARKETS — Bethlehem Supply Co., Tulsa, and the Bethlehem Supply Co. of California, Los Angeles, have been appointed distributors by TUBE TURNS, INC., Louisville. They will handle Tube-Turn welding fittings and flanges.

CHAPTER LEADERS — Leo Chapin of Chapin & Fagin, Inc., Buffalo, was elected president of the Western New York chapter of the INSTITUTE OF SCRAP IRON & STEEL. J. L. Maher, Pennsylvania Wood & Iron Co., Inc., Buffalo, was named vice-president and Jack Reingold, Lake City Iron & Metal Co., Buffalo, re-elected secretary-treasurer.

SOUTHERN DEALER—Hyster Co., Portland, has appointed the AICHEL STEEL & SUPPLY CO., Jacksonville, Fla., as a dealer for their industrial materials handling equipment. They will handle the sales and service of Hyster equipment in eight Florida counties and twelve Georgia counties.

SALES OFFICES—New branch sales offices in Newark, N. J., and El Dorado, Ark., have been established by the RELIANCE ELECTRIC & ENGINEERING CO., Cleveland. The Syracuse district office directing the company's sales throughout northern and western New York State has been transferred to Buffalo.

WESTERN AGENT — The San Francisco and Los Angeles office of the ROUND CALIFORNIA CHAIN CO. are now acting as sales representatives for the Cleveland Cap Screw Co., producers of cap screws, socket screws, set screws and milled studs.

TUBE DIVISION — An Electronic Tube Division has been formed by the WESTINGHOUSE ELECTRIC CORP. and plans are in progress for three new plants to manufacture various types of tubes. E. W. Ritter has been appointed manager of this new division.

ACQUISITION — The entire tractor allied equipment business of Isaacson Iron Works has been acquired by the PULLMAN-STANDARD CAR MFG. CO., Chicago. Operation of the Isaacson plant at Rockford, Ill., will be continued by Pullman-Standard.

OPENING MINE — The VICTOR CHEMICAL WORKS, Chicago, is opening a mine on the Maiden Rock phosphate deposit and constructing a $5 million plant for processing the rock into elemental phosphorus in the vicinity of Butte, Mont.

GM to Build Thunderjets; Ominous Note for Auto Industry

Detroit—A news release by General Motors last week contained an ominous note Detroit has been fearing. Announcing that GM will build Republic F-84 Thunderjet fighter airplanes at its Buick-Olds-Pontiac plant at Kansas City, C. E. Wilson, president, said, "When tooling is completed the plant will be used exclusively for the manufacture of airplanes."

The question Detroit is now asking is just how many other plants built by the government and subsequently purchased and operated by the industry will be claimed for war production and how soon will recapture be ordered.

In addition to the Kansas City Plant, there are at least five major plants operated by the auto industry today that could be taken over by the government under the terms of similar purchase agreements.

Armco Rebuilds Hot Strip Mill

Middletown, Ohio—The $3 million modernization program for the hot strip mill at Armco Steel Corp.'s East Works will be completed during the third week of January.

An inventory of hot-rolled steel coils was built up in anticipation of the shutdown of this plant Jan. 2. This inventory will insure a steady supply of material during the shutdown to other departments. The openhearth department will continue to produce ingots.

Wartime Controls for England?

London — Some wartime controls may return to England with the government's decision to expand rearmament spending past present plans. Labor may again have to be directed into defense industries, prices and supplies may have to be controlled, and factories and buildings may have to be requisitioned.

Memo to all Forge Shops!

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No. 4 REDUCEROLL

No. 6A MAXIPRES



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New York Detroit Chicago

U. S. Steel Speeds Fairless Works Plan

Motivated by defense needs . . . Plan early spring start, late 1952 finish . . . To have 1.8 million ton capacity . . . See output starting in year . . . National Tube to build pipe mill.

New York—U. S. Steel Corp. will build a new, wholly-integrated steel plant near Morrisville, Pa. It will be called the Fairless Works and is probably the biggest single expansion in steel's history, adding 1,800,000 annual ingot tons to the Corporation's capacity when completed by the end of 1952. Stress was laid on steel for defense in U. S. Steel's announcement for the project which will start early this spring.

Chairman of the Board Irving S. Olds said that within 6 to 12 months after construction opens, the first finished steel products are expected to be produced in the plant. The completed mill will produce a range of products, including bars, standard steel pipe, wire rods, hot and cold-rolled sheets and strip, and tinplate.

News of the mill is official confirmation of long-standing IRON AGE predictions that U. S. Steel would build an Eastern Mill in 1951. (THE IRON AGE, Feb. 2, 1950.) The Fairless Works will be the largest steelmaking aid to the defense effort authorized by U. S. Steel since the Korean war. Total of the firm's post-Korean expansion will add more than 4 million tons to its capacity.

Will Serve Two Areas

Mr. Olds stated that Fairless Works products will be distributed to Middle Atlantic and New England markets and mill location on the banks of the Delaware river, opposite Trenton, N. J., will expedite steel exports.

He said that the direness of the international situation and the need of American industry for defense program steel crystallized U. S. Steel's plans for an eastern seaboard mill. Plans were readied and put into effect when national focus was turned on the present crisis.

The Fairless Works will number among its products carbon high strength and alloy steel ingots, blooms, billets, slabs, bars, including bar-sized shapes, rounds, squares, concrete reinforcing bars, wire rods, light plates, standard steel pipe, hot and cold-rolled sheets and strip, vitrenamel sheets, blackplate, electrolytic and hot-dipped tinplate, and coal chemicals.

Breakdown by Products

The proposed plant will have an initial annual capacity to make 289,000 tons of cold-rolled sheets, 235,000 tons of hot-rolled sheets, 281,000 tons of standard pipe, 285,000 tons of bar products, and 170,000 tons of tin mill products.

Major construction at the Fairless plant will include: a coke and chemical plant, including two 85-oven byproduct coke batteries with a yearly potential of 916,000 tons of coke and more tonnages of coal chemical products; two blast furnaces with an annual capacity of 1,200,000 tons of pig iron; nine openhearths with an annual capacity of 1,800,000 tons of steel; an 80-in. hot strip mill and hot strip finishing facilities; finishing facilities for cold-rolled sheets and tinplate; a bloom-slab mill and auxiliary facilities, a billet mill and auxiliary facilities; and a bar mill with a size range from ⅜ in. to 2 in.

National Tube Facilities

U. S. Steel's subsidiary, National Tube Co., will build here facilities for making standard pipe, including a skelp mill, two Fretz Moon continuous butt weld pipe mills to produce annually 281,000 tons of ½-in. to 4-in. butt weld pipe; pipe galvanizing equipment, and a warehouse with a 30,000-ton capacity.

Ore docks to accommodate ocean-going ships—unloaders, ore

Turn to Page 382

October Finished Steel Shipments

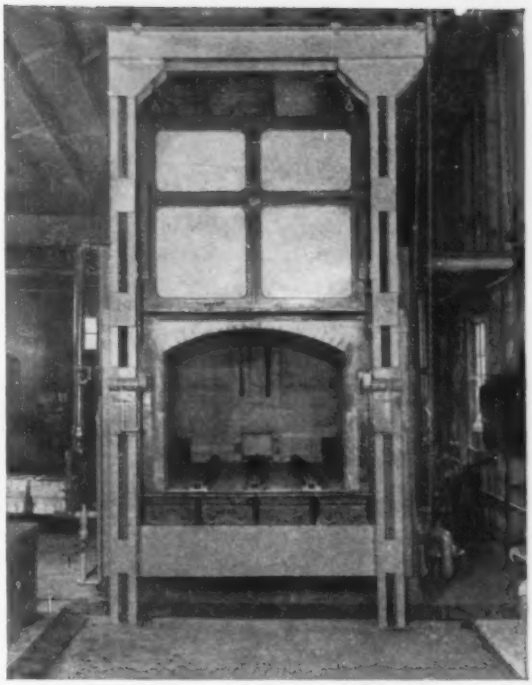
As Reported to the American Iron & Steel Institute

STEEL PRODUCTS		Current Month					To Date This Year				
		Carbon	Alloy	Stainless	Total	Percent of Total This Month	Carbon	Alloy	Stainless	Total	Percent of Total This Month
Ingots	1A	93,101	13,780	1,773	108,654	1.7	• 580,631	101,554	14,031	• 696,216	1.2
Blooms, slabs, billets, tube rounds, sheet bars, etc.	1B	154,321	42,854	1,001	198,176	3.0	1,419,917	354,320	8,203	1,782,440	3.0
Skelp	2	11,397	-	-	11,397	0.2	100,231	-	-	100,231	0.2
Wire rods	3	74,039	1,885	195	76,119	1.2	666,417	12,681	1,005	680,103	1.1
Structural shapes (heavy)	4	366,159	7,691	2	373,852	5.7	3,407,845	34,858	141	3,442,844	5.8
Steel piling	5	87,156	-	-	87,156	0.4	270,934	-	-	270,934	0.5
Plates	6	518,500	21,857	1,508	541,865	8.3	• 4,420,991	147,570	9,576	• 4,578,137	7.7
Rails—Standard (over 60 lbs.)	7	137,607	27	-	137,634	2.1	1,454,856	311	-	1,454,567	2.4
Rails—All other	8	9,486	9	-	9,495	0.1	96,284	62	-	96,346	0.2
Joint bars	9	9,208	-	-	9,208	0.1	95,358	-	-	95,358	0.2
Tie plates	10	28,007	-	-	28,007	0.4	352,642	-	-	352,642	0.6
Track spikes	11	12,710	-	-	12,710	0.2	117,867	-	-	117,867	0.2
Wheels (rolled & forged)	12	26,342	32	-	26,374	0.4	208,986	97	-	209,083	0.4
Axles	13	17,519	49	-	17,568	0.3	98,032	512	-	98,544	0.2
Bars—Hot rolled (incl. light shapes)	14	560,247	190,151	3,014	753,412	11.6	4,976,234	1,621,501	21,918	6,619,653	11.1
Bars—Reinforcing	15	159,332	-	-	159,332	2.5	1,369,533	260	-	1,369,793	2.3
Bars—Cold finished	16	130,564	24,464	3,662	158,710	2.4	1,115,143	205,978	24,247	1,345,368	2.3
Bars—Tool Steel	17	2,167	7,668	-	9,835	0.2	14,181	56,061	-	70,242	0.1
Standard pipe	18	238,147	89	3	238,239	3.7	2,152,618	339	14	2,152,971	3.6
Oil country goods	19	136,279	18,495	-	154,774	2.4	• 1,221,194	• 186,759	-	•1,407,953	2.4
Line pipe	20	247,237	60	-	247,297	3.8	2,967,596	66	-	2,967,662	5.0
Mechanical tubing	21	54,373	21,101	503	75,977	1.2	430,888	171,865	2,589	605,682	1.0
Pressure tubing	22	20,277	2,293	806	23,376	0.4	175,953	20,253	6,345	202,551	0.3
Wire—Drawn	23	264,176	3,385	2,105	269,326	4.2	2,236,861	• 31,808	16,798	•2,317,471	3.9
Wire—Nails & staples	24	77,642	-	1	77,643	1.2	730,307	-	70	730,377	1.2
Wire—Barbed & twisted	25	20,521	-	-	20,521	0.3	195,570	-	-	195,570	0.3
Wire—Woven wire fence	26	42,368	-	-	42,368	0.7	406,361	-	-	406,361	0.7
Wire—Bale ties	27	8,463	-	-	8,463	0.1	67,927	-	-	67,927	0.1
Black plate	28	60,026	-	- 4	60,026	0.9	451,312	-	-	451,312	0.8
Tin & terne plate—hot dipped	29	154,727	-	-	154,727	2.4	1,592,973	-	-	1,592,973	2.7
Tin plate—Electrolytic	30	232,782	-	-	232,782	3.6	2,382,456	-	-	2,382,456	4.0
Sheets—Hot rolled	31	675,905	27,080	1,903	704,887	10.8	• 6,201,636	213,786	23,317	•6,438,739	10.8
Sheets—Cold rolled	32	805,214	12,617	11,365	829,196	12.8	• 7,558,696	91,037	89,687	•7,739,480	13.0
Sheets—Galvanized	33	188,378	2,184	-	190,562	2.9	1,900,672	• 22,497	-	•1,923,169	3.2
Sheets—All other coated	34	20,937	-	-	20,937	0.3	193,547	-	-	193,547	0.3
Sheets—Enameling	35	85,530	-	-	85,530	0.4	216,569	-	-	216,569	0.4
Electrical sheets & strip	36	11,134	56,273	-	67,467	1.0	86,326	• 500,213	-	• 587,241	1.0
Strip—Hot rolled	37	221,254	5,742	594	227,630	3.5	• 1,819,128	37,804	6,361	•1,922,693	3.2
Strip—Cold rolled	38	152,632	2,848	16,817	171,697	2.6	• 1,390,795	• 13,502	141,929	•1,546,226	2.6
TOTAL	..	5,995,986	481,994	45,551	6,503,531	100.0	•55,266,869	•3,886,788	366,561	59,459,218	100.0

During 1949 the companies included above represented 99.4 % of the total output of finished rolled steel products as reported to the American Iron and Steel Institute.
•Revised.

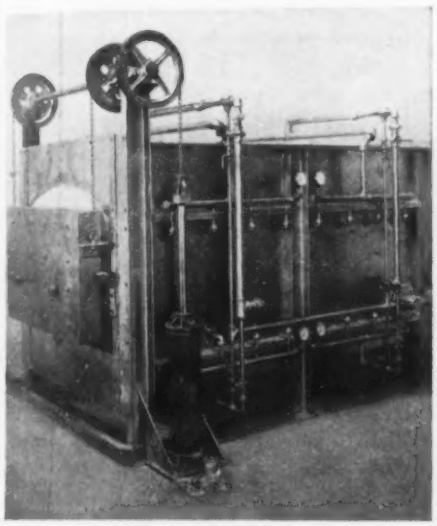
DREVER

The hearth and side tile of this furnace, built by the Drever Company of Philadelphia, Pa., are made of CARBOFRAX silicon carbide tile. This is a single-end, under-fired furnace used for annealing, forming and general-purpose heat treating.



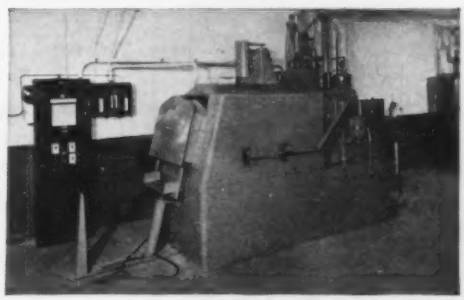
AMERICAN GAS

This gas-fired oven furnace is built by the American Gas Furnace Company of Elizabeth, N. J. It is designed to operate at temperatures up to 1800°F, for box carburizing, annealing large forgings, etc. The hearth, 42 inches wide by 85 inches long, is constructed of CARBOFRAX tile and is carried on CARBOFRAX supports.



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IPSEN



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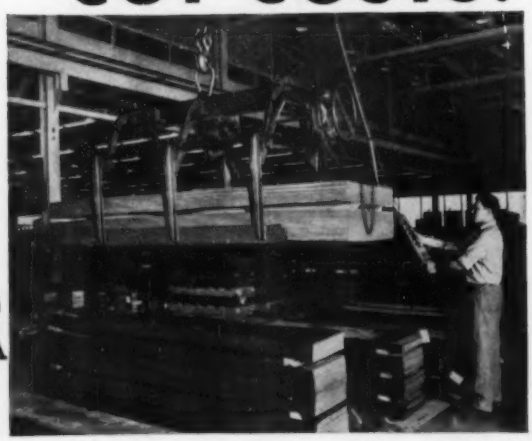
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U. S. Steel's Fairless Works

(Continued from page 380)

bridges, and related equipment—will be built also. These will eventually receive ore cargoes from U. S. Steel's Cerro Bolivar ore mountain in Venezuela. Auxiliary equipment will include plant railways, roadways, utilities, etc.

Mr. Olds revealed that certificates of necessity had been issued by Washington to cover "a major part of the estimated cost of these facilities." Fairless Works will be operated by the newly-formed U. S. Steel Co., the result of a merger of four subsidiaries, and the pipe mill by National Tube. (See p. 388 for fast tax writeoff story.)

Swedish Steel Exports Rise; Pig Iron, Scrap Imports Also Up

London—During the first 9 months of 1950, Swedish exports of iron ore were 9,560,000 tons, compared with 10,340,000 tons for the same period in 1949.

Iron and steel exports increased from 114,600 tons to 130,600 tons, the rise being particularly marked in pig-iron, ferrous alloys and sponge iron.

Pig Iron Imports Up

The import of pig-iron increased from 67,500 tons to 73,200 tons, while scrap imports remained at the 1949 level of about 120,000 tons. The import of rolled and forged iron and steel and cast-iron pipes, however, sank from 520,000 tons to 435,000 tons.

Pig-iron production totalled 585,700 tons; steel ingots and castings rose to 1,047,400 tons; rolled and forged iron and steel mounted to 671,600 tons.

To Build Swedish Limestone Works

Rattvik, Sweden—Claiming that Denmark and Finland have dominated the lime market in Scandinavia for too long, the Stora Kopparbergs A.B. will construct a limestone works near this city. Its products will feed, among other industries, the nearby Domnarvet Ironworks.

VANCORAM BRAND

Products for the Iron and Steel Industrie

PRODUCT	TYPICAL COMPOSITION	APPLICATIONS
ALSIFER	Aluminum.....20% Silicon.....40% Iron.....40%	Used principally as a steel deoxidizer and for grain size control.
FERRO CHROMIUM High Carbon Grade	Chromium....66-70% Carbon.....4-6%	For wrought constructional steels and steel and iron castings.
Iron Foundry Grade	Chromium....62-66% Carbon.....4-6% Silicon.....6-9%	For alloyed cast irons. Readily soluble as a ladle addition at the lower temperatures of cast iron.
Low Carbon Grades	Chromium....67-72% Carbon...06%, .10%, .15%, .20%, .50%, 1.00% and 2.00% max.	For low carbon chromium steels, especially those with high chromium content, such as stainless and heat-resistant types.
FERRO CHROMIUM SILICON Low Carbon Grade	Chromium....39-42% Silicon.....40-42% Carbon....max. .06%	Used in stainless steel production to add chromium to the bath and reduce oxidized metals from slag.
Special Grades		For special applications.
FERRO SILICON 25-30% Grade	Silicon.....25-30%	Deoxidizer for open hearth steels; also for high silicon, corrosion-resistant iron castings.
50% Grade	Silicon.....47-52%	Used as a deoxidizer and for the addition of silicon to high silicon steels; added to cast iron for silicon content and for graphitization control.
75% Grade	Silicon.....74-79%	For high silicon content steels, such as spring steels, sheets and forgings of high magnetic qualities for electrical apparatus.
High Silicon Grades 80-85% 85-90% 90-95%	 Silicon.....80-84.9% Silicon.....85-89.9% Silicon.....90-95%	 For high silicon content steels where small ladle additions are used for required silicon content.
FERRO TITANIUM High Carbon Grade	Titanium.....15-18% Carbon.....6-8%	Final ladle addition to control "rimming" action and to clean effervescing steel. Final deoxidizer and scavenger for steel castings and fully killed ingot steels.
Medium Carbon Grade	Titanium.....17-21% Carbon.....3-4.50%	Often preferred to the High Carbon Grade as a final ladle addition to very low carbon rimming or effervescing steels.
Low Carbon Grades 20-25% Ti Grade	Titanium.....20-25% Carbon...max. 0.10% Silicon.....max. 4% Aluminum max. 3.50%	Carbide stabilizer in high chromium corrosion-resistant steels of extremely low aluminum content. Deoxidizer for some casting and forging steels.
40% Ti Grade	Titanium.....38-43% Carbon...max. 0.10% Silicon.....max. 4% Aluminum...max. 8%	Carbide stabilizer in high chromium corrosion-resistant steels, where smaller ladle additions are desired and extremely low aluminum content is not essential.
ALUMINUM	Aluminum....85-99%	For deoxidation and grain size control of steel. (Ingot, shot, grain and special shapes.)
VANADIUM METAL		For iron-free, low-iron, or low-impurity alloys.
90% Grade	Vanadium.....91%	
95% Grade	Vanadium.....95%	
99.7% Grade	Vanadium.....99.7%	

PRODUCT	TYPICAL COMPOSITION	APPLICATIONS
FERRO VANADIUM Iron Foundry Grade	Vanadium....38-42% Silicon.....7-11% Carbon.....about 1%	For iron foundry use. Imparts remarkable improvement in physical properties with no sacrifice of machinability; highly soluble, insuring complete diffusion.
Grade "A" (Open Hearth)	Vanadium....35-45% 50-55% Silicon...max. 7.50% Carbon...max. 3.00%	For low percentage vanadium content of rolled, forged or cast constructional steels. Also used in vanadium cast irons.
Grade "B" (Crucible)	Vanadium....35-45% 50-55% Silicon...max. 3.50% Carbon...max. 0.50%	For tool steels and special high vanadium steels in which required limits for carbon and silicon are narrow.
Grade "C" (Primos)	Vanadium....35-45% 50-55% 70-80% Silicon...max. 1.25% Carbon...max. 0.20%	For tool steels and special steels requiring high percentages of vanadium and exceptionally low carbon and silicon content.
VANADIUM PENTOXIDE Technical Grade Fused Form	V_2O_5 ..88-92%	A source of vanadium in basic electric furnace steels. A base for numerous chemical compounds.
Technical Grade Air Dried Form	V_2O_5 .....83-85%	A base for preparation of numerous chemical compounds (catalysts, etc).
GRAINAL ALLOYS Vanadium Grainal No. 1	Vanadium....25.00% Aluminum....10.00% Titanium.....15.00% Boron.....0.20%	Practical and economical intensifiers for controlling and increasing the capacity of steels to harden, and for improving other important engineering and physical properties.
Vanadium Grainal No. 6	Vanadium....13.00% Aluminum....12.00% Titanium.....20.00% Boron.....0.20%	See above.
Grainal No. 79	Aluminum....13.00% Titanium.....20.00% Zirconium.....4.00% Manganese....8.00% Boron.....0.50% Silicon.....5.00%	See above.
GRAPHIDOX No. 4	Silicon.....48-52% Titanium.....9-11% Calcium.....5-7%	Efficient graphitizing inoculant in high strength cast irons; reduces chill and controls graphitization; used as a supplementary deoxidizer for cast steel.
V-FOUNDRY ALLOYS V-5 Grade	Chromium....38-42% Silicon.....17-19% Manganese....8-11%	Used in cast irons as a ladle addition. Reduces chill, promotes uniformity of structure, increases strength and hardness.
V-7 Grade	Chromium....28-32% Silicon.....15-21% Manganese...14-16%	See above.
BRIQUETTES Ferro Chromium	Hexagonal. Weigh approx. 3¾ lb. and contain 2 lb. of chromium.	A practical and convenient form for adding ferro-alloys to the cupola.
Ferro Silicon	Two sizes, both cylindrical, one containing 1 lb. of silicon; the other, 2 lb. of silicon.	See above.
MISCELLANEOUS	Special ferro-alloys, metals, chemicals and carbides.	To meet individual requirements.

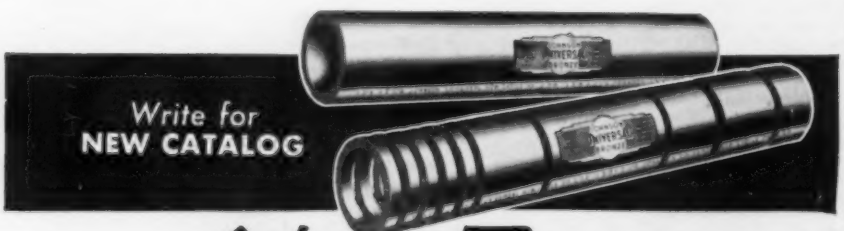
VANADIUM CORPORATION OF AMERICA

) LEXINGTON AVENUE, NEW YORK 17, N. Y. • DETROIT • CHICAGO • CLEVELAND • PITTSBU



JOHNSON BRONZE *BARS* are completely machined—outside diameter, inside diameter, and ends—and require only 1/64" cut to bring to size. You can see the savings in metal and machine work that this provides. Such a complete range of diameters is available that you may order any size you need. And, too, every bar is perfect, concentric and with no under-surface defects—entirely usable from end to end. They are cast from highest quality bearing bronze, an alloy that cuts easily, yet delivers the utmost in serviceability.

Johnson Universal Bronze is made in over 350 sizes. Cored bars are available in inside diameters from ½" to 7¾", and outside diameters from 1" to 10". The possible variations are great; for example, bars of 1" inside diameter may be furnished with outside diameters from 1½" to 4". The solid bars are made in a range of sizes from ⅝" to 8" diameters. Complete stocks are maintained by Johnson distributors from coast to coast, and by twenty-two Johnson Bronze warehouses.



Johnson Bronze
SLEEVE BEARING HEADQUARTERS
505 SOUTH MILL STREET : NEW CASTLE, PA.

Use of Aluminum in Weapons Quickened by Start of Korean War

Pittsburgh — Aluminum use in weapons increased quickly after the start of Korean hostilities and will rise further as the defense program is spurred in 1951, said Roy A. Hunt, president of Aluminum Co. of America.

Although the aircraft industry will continue to be the major consumer, other defense applications will increase. Some aluminum uses are in the new 3.5-in. bore super bazooka, using about 13 lb; aircraft landing mats; tactical and floating bridges; radar towers and equipment; GI helmets; rockets and launching equipment; fire control towers, portable shelters; and mess kits.

Other Aluminum Uses

Other applications include: "invasion pipe" for fuel lines, containers for rocket fuel chemicals; ships and amphibious vehicles; aircraft armor; submarines and PT boats; unloading ramps and assault equipment; water and fuel tanks, field kitchen equipment, etc.

Mr. Hunt said that Alcoa had made progress in development of rolled aluminum "tapered sheet and plate" for plane wing skin panels and structures. Also developed was a new high-strength aluminum alloy rivet for bridges, railroad cars, and other structures.

New Dumas Steel Executive

Pittsburgh—David W. Thomas, formerly asst. general manager of sales, Jones & Laughlin Steel Corp., took over on Jan. 1 as executive vice-president and a director of Dumas Steel Corp. of Pennsylvania and its subsidiary companies, Dumas Steel Corp. of Illinois, New Jersey, Michigan.

Mr. Thomas also acquired a substantial interest in the company, which warehouses and distributes tin mill and sheet and strip products. He will also serve as general manager of M. G. Dumas & Sons, a partnership.

IF YOU SAY:

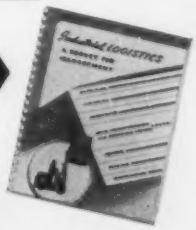
"But my loads are different"

then look at these

ELWELL-PARKER *Specials*

These examples illustrate ingenuity in solving unusual handling problems. To meet such needs, Elwell-Parker draws on its 45 years' experience supplying power trucks for over 300 industries. That is why owners of mixed fleets usually turn to Elwell-Parker when they have special requirements . . . From its "pool" of 87 different sizes and types, Elwell-Parker can usually select a truck for the job. If not, ask your man about a unit "tailored" precisely to your needs. The Elwell-Parker Electric Company, 4070 St. Clair Avenue, Cleveland 3, Ohio.

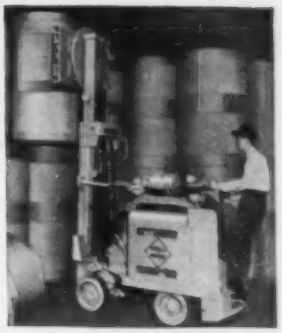
FREE BULLETIN on Scientific Materials Handling. Write for "Industrial Logistics" and name your product.



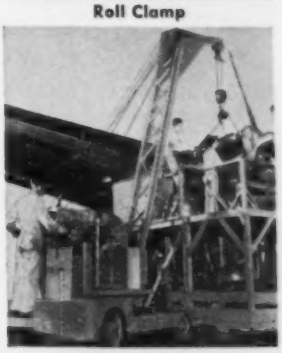
ELWELL-PARKER

POWER INDUSTRIAL TRUCKS

Established 1893



Roll Clamp



Special Crane



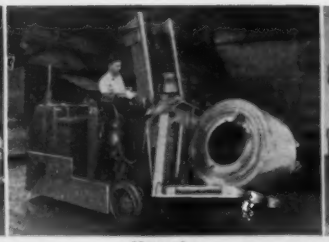
Drum Handler



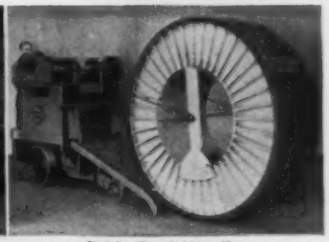
Die Handler



Pallet Retriever



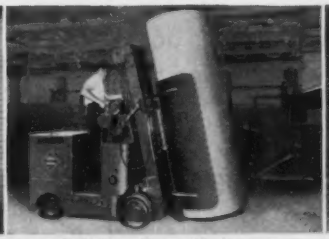
Upender



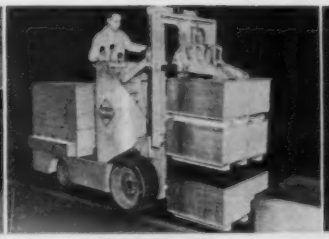
Cable Reel Handler



Side Dump Revolving Unit



Roll Handler with Apron



Tin Plate Clamp



Bale Clamp



Twin Coil Handler



Rotary Scoop



Roll Piercing Truck



3-Ton Low Lift; 1-Ton Crane

IT'S THE *Reliability* OF
HEVI DUTY FURNACES
that assures
MORE PRODUCTION • LESS "DOWN-TIME" •
FEWER REJECTS • UNIFORM RESULTS



Mr. E. W. Krueger, Operations Manager of Cleveland Pneumatic Tool Co., says, "The uniformity of temperature in our Hevi Duty Pit Type Furnaces allows us to heat treat large aircraft forgings at heats and speeds adequate to meet the most exacting requirements."

These special pit type furnaces with a work space of 48" x 156" are typical of furnaces designed and built by Hevi Duty Electric Company to solve unusual heat treating problems.

The Hevi Duty return bend type heating elements are zoned to provide uniform temperatures in the entire depth of the work chamber.

For more information on how Hevi Duty Pit Type Furnaces can help you . . .

Write for Bulletin HD-1245

HEVI DUTY ELECTRIC COMPANY
HEAT TREATING FURNACES HEVI DUTY ELECTRIC EXCLUSIVELY
DRY TYPE TRANSFORMERS — CONSTANT CURRENT REGULATORS
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Little Steel—No Profit

Grand Rapids, Mich.—Inability to obtain sheet steel supplies, and an 11-week strike of foundrymen were blamed for a loss during the fiscal year ended Sept. 30, 1950 by Hayes Mfg. Co. and its subsidiaries, American Engineering Co., Philadelphia, and Affiliated Engineering Co. Ltd., Montreal.

A net loss of $134,582 was sustained compared with net income of $1,111,706 in the previour year. The shortage in steel sheet necessitated use of certain types of steel which, because of high scrap loss, proved very costly, the company reported.

Pittsburgh Industry Level High

Pittsburgh — Business in the district showed a further increase last week, passing the previous all-time high of Dec. 11, 211.7, according to the University of Pittsburgh. Steel mills in the district operated at close to full capacity with 46 of the 47 available blast furnaces in operation.

Bituminous coal tonnage in Pennsylvania and electric power output reached new high records. Rail and river shipments reflected counter-seasonal increases, explained in part by movement of commodities accumulated during the period of heavy snow.

New motor car registrations last week were the lowest since early June; bank clearings showed a large counter-seasonal drop.

New Iridite Finish Saves Zinc

Baltimore — More plating production with less zinc is claimed for a new, low cost Iridite treatment for bright-type finishing of zinc plate in automatic machinery, according to Allied Research Products, Inc.

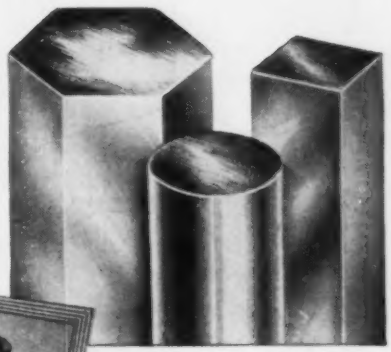
The protective chromate film can be produced on zinc plated coatings of less than .0001 in. thickness, the company claims. The coating, bluish bright or yellow iridescent, is flexible and can be applied in an immersion time of 20 seconds to a full minute. No bleaching operation is required.

Tough Machining Problems Solved with J&L Cold-Finished

JALCASE 10

J&L STEEL







Maybe you haven't gotten the word yet, but more and more machinists are "discovering" Jalcase 10 (A.I.S.I. No. C-1144), the top grade of J&L Cold-finished Jalcase. And they're getting good results, too! Here's why.

Jalcase 10 is the highest carbon grade of Jalcase; it has high mechanical and machinability properties. This makes Jalcase 10 ideal for those tough "in between" machining applications. For instance:

Many times the finished-parts specifications on a job call for a high degree of hardness, but not as high as that obtained through heat-treating the finished part. In these applications, manufacturers and machinists have found it profitable to use Jalcase 10 and dispense with the heat-treating altogether.

This saves production time and cuts down on costs. And Jalcase 10's high quality produces a better finish. It's worth your while to try Jalcase 10 on your screw machines.

GET THIS BOOKLET

FREE

You'll want more information about Jalcase 10 . . . and the other nine grades of Jalcase. Our booklet entitled "You Can Make Them Better with J & L Cold-finished Jalcase" contains information and technical data to help you produce better parts. This illustrated booklet is yours for the asking. Write today!

MAIL THIS COUPON

Jones & Laughlin Steel Corporation
403 Jones & Laughlin Building
Pittsburgh 30, Pennsylvania

— Please send me a free copy of "You Can Make Them Better with J&L Cold-Finished Jalcase".

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TITLE_____

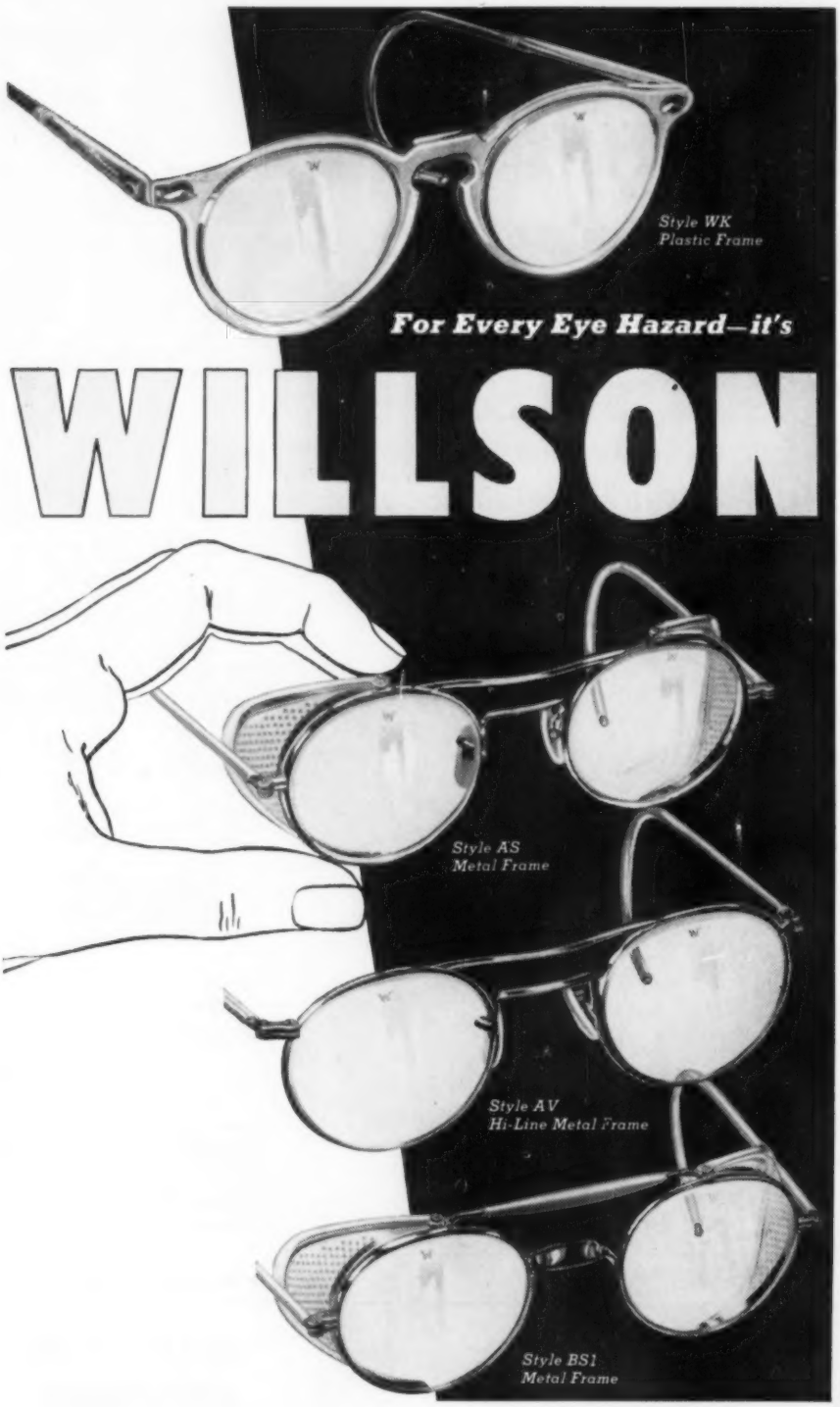
COMPANY_____

ADDRESS_____

JONES & LAUGHLIN STEEL CORPORATION

From its own raw materials, J&L manufactures a full line of carbon steel products, as well as certain products in OTISCOLOY *and* JALLOY (*hi-tensile steels*).

PRINCIPAL PRODUCTS: HOT ROLLED AND COLD FINISHED BARS AND SHAPES • STRUCTURAL SHAPES • HOT AND COLD ROLLED STRIP AND SHEETS • TUBULAR, WIRE AND TIN MILL PRODUCTS • "PRECISIONBILT" WIRE ROPE • COAL CHEMICALS



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. . . only the most complete line of safety spectacles with Super-Tough* lenses gives you *all three* in metal or plastic frames. You'll find WILLSON safety spectacles an ideal combination of strength, comfort and good looks. And you need *all three* to get full cooperation from workers who must wear eye protection. See our new catalog for complete information. Get it from our nearest distributor, or write direct to WILLSON PRODUCTS, INC., 233 Washington St., Reading, Pennsylvania.

NSRB Grants 31 Plants Approval for Fast Tax Writeoffs

Washington—The National Security Resources Board announced approval of 31 other applications for fast writeoffs on expanded defense plant and equipment. The certificates apply to new production of malleable iron castings, barbed wire, precision steel castings, tungsten carbide, liquid oxygen, hydraulic pumps, tanks, fire brick, freight cars, ore-handling facilities, steel ingots, and other defense commodities.

Companies to which certificates have been issued, and amounts applied for, are as follows:

Albion Malleable Iron Co., Albion, Mich., $1,353,380; United Steel and Wire Co., Battle Creek, Mich., $30,600; Heintz Mfg. Co., Philadelphia, $204,000; Arwood Precision Casting Co., Brooklyn, N. Y., $94,100; Capitol Foundry Co., Phoenix, Ariz., $1,452,500; Carboloy Co., Inc., Detroit, $2,199,215 and $320,000; Blaw-Knox Co., Pittsburgh, $58,000; Thompson Products, Inc., Cleveland, $4,930,000; Air Reduction Co., Inc., New York, N. Y., $562,125; The New York Air Brake Co., Watertown, N. Y., $748,870; Dresser Industries, Inc., Bradford, Pa., $663,070; Merrill Brothers, Maspeth, N. Y., $141,934; Wheeling Steel Corp., Wheeling, W. Va., $8,750,000; Chrysler Corp., Detroit, Mich., $15,973,900.

Also: Harbison-Walker Refractories Co., Pittsburgh, $1,659,659 and $5,309,131; Thomas Steel Co., Warren, Ohio, $1,142,417; Chesapeake and Ohio Railway Co., Cleveland, $9,941,184 and $31,587,000; Barden Corp., Danbury, Conn., $622,693; Lehigh and New England Railroad Co., Bethlehem, Pa., $2,275,000; National Tube Co., Pittsburgh, $46,631,420; Tennessee Coal, Iron and Railroad Co., Birmingham, Ala., $41,525,000; Geneva Steel Co., Salt Lake City, Utah, $4,263,000; Carnegie-Illinois Steel Corp., Pittsburgh, $351,414,000; Roller Bearing Co. of America, Trenton, N. J., $1,453,961; Tennessee Products and Chemicals Corp., Nashville, Tenn., $805,961; Hofman Industries, Inc., Sinking Springs, Pa., $241,800; Jones and Laughlin Steel Corp., Pittsburgh, $2,000,000; Washburn Wire Co., Phillipdale, R. I., $638,000; and Allegheny Ludlum Steel Corp., Brackenridge, Pa., $5,266,000.

Alcoa-CIO Agree on 2¢ Raise

Pittsburgh—An agreement within the range of the wage pattern recently established in the steel industry has been reached by Aluminum Co. of America and the United Steelworkers of America.

The agreement, affecting 17,000 Alcoa employees in 10 plants, includes (1) the addition of six paid holidays to the advance 10 pct wage increase which was effective the first payroll week in October, and (2) an additional 2¢ per hour at 4 southern plants at Alcoa, Tenn., Badin, N. C., Bauxite, Ark., and Mobile, Ala., and 3¢ per hour at Point Comfort, Tex., effective in the Dec. 11 payroll week.

"NECESSITY ADAPTATION The Mother of ~~Invention~~"



applies to Purchasing, too!

RELIANCE *Job-Fitted* **PRODUCTS AND SERVICES**

COLD ROLLED STRIP STEEL

Coils . . . Cut Lengths . . . All Tempers
Slit, Sheared, Deburred
and Round Edge
From WAREHOUSE
or
DIRECT-FROM-MILL

SHEETS

Cold Rolled . . . Hot Rolled
Hot Rolled Pickled . . . Long Terne
Galvanized
Standard or production sizes
or cut to actual working
dimensions
from
WAREHOUSE STOCKS

In 1950, most purchasing agents had their hands full finding sheet and strip steel to make production ends meet. The proof of their collective resourcefulness is 1950's output of civilian goods—the largest in our economic history.

When "blue-print" steel was unobtainable, they took the nearest they could get. It wasn't easy. Frequently they had to "sell" their managements and shop people on liberalizing specifications, on altering tools and dies, and on revamping operations. But they kept production going.

Through necessity, they became masters of *adaptation—the* art and science of making what you've got, *do* . . . the *job-fitting* principle applied on a grand scale.



DEPENDABLE DAN
OUR CUSTOMERS' MAN

We at Reliance are grateful for having had a hand in easing the job for so many purchasing agents. Come what may in '51, we'll continue to help them to the limit of our capacity.

STEEL—MAINSTAY OF NATIONAL PRODUCTION

For Immediate Action Call The Nearest Reliance Plant or Office:

DETROIT STEEL CORPORATION

PRODUCERS OF
Coke and Coal Chemicals • Pig Iron • Ingots
Slabs • Sheet Bars • Billets • Wire Rods
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Welded Fabric • Cold Rolled Strip Steel

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RELIANCE STEEL DIVISION

Processors and Distributors JOB-FITTED Sheet and Strip Steel

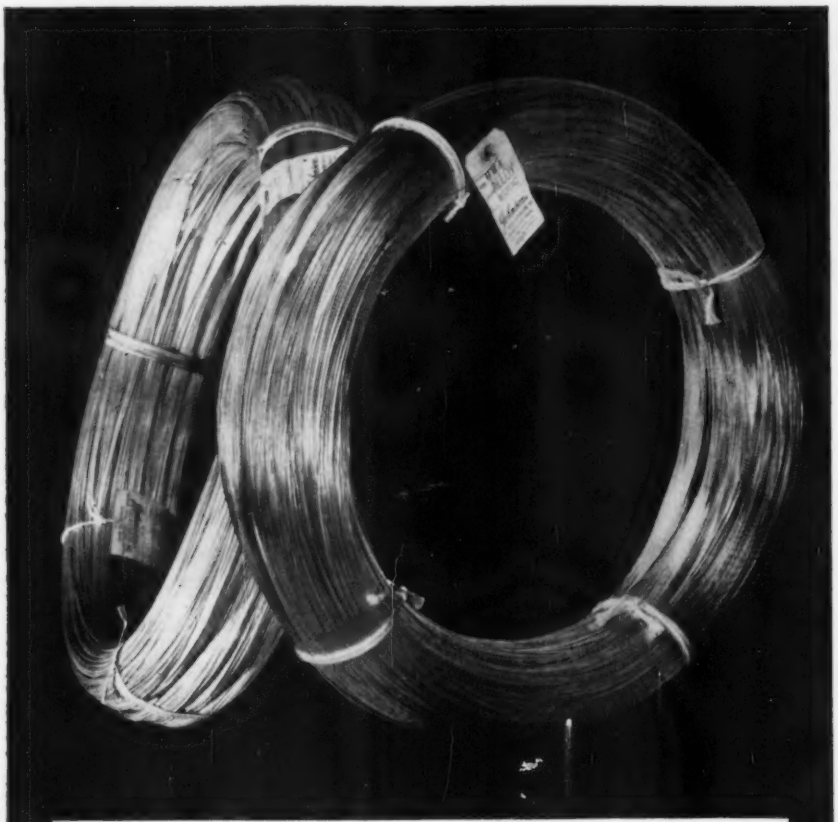
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JOHNSON is a wire specialty plant, not a tonnage mill. Every Johnson wire is drawn under close laboratory supervision, resulting in the specific wire for its intended use. Johnson goes in for top quality and ease in processing.

Music Wire—"The wire of a thousand uses" . . . Brush Wire . . . Aircraft Cable Wire . . . Vacuum Hose Wire . . . Hose Reinforcement Wire (braided type) . . . Tire Bead Wire . . . Johnson Stainless Steel (18-8 grade, types 302 and 304) comes to you with lasting harmless lubrication (not to be removed).

JOHNSON

STEEL AND WIRE COMPANY, INC.

WORCESTER 1, MASS.

New York Philadelphia Cleveland Detroit Akron Chicago
Atlanta Houston Tulsa Los Angeles Toronto

Washington Asks Industry Advice on Price, Wage Controls

Washington — The government is asking officials of the steel, copper, and lead and zinc industries for advice on setting up price and wage controls.

The Economic Stabilization Agency invited leading producers to attend government-industry conferences on "stabilization problems" this week.

Economic Stabilization Administrator Alan Valentine and Price Stabilization Director Michael DiSalle said they would meet with representatives of the copper industry on January 3, the lead and zinc industry on January 4, and the steel industry on January 5.

Industrialists Invited

Steel products manufacturers invited to the price-wage conferences are: John A. Ingwersen, Armco Steel Corp.; H. B. Johnson, Atlantic Steel; Paul Mackall, Bethlehem Steel; F. S. Jones, Colorado Fuel & Iron Corp.; Walter Wiewel, Crucible Steel Co.; Joseph L. Block, Inland Steel; A. J. Hazlett, Jones & Laughlin Steel Corp.; James Hanks, Kaiser Co., Inc.; J. F. Wiese, Lukens Steel Co.; J. A. Henry, National Steel Corp.; A. C. Adams, Pittsburgh Steel Co.; J. M. Schlendorf, Republic Steel Corp.; David F. Austin, U. S. Steel Corp.; W. E. Watson, Youngstown Sheet & Tube; N. C. Reed, Wheeling Steel.

The copper manufacturers invited are: DeWitt Smith, Newmont Mining; James Douglas, Phelps Dodge Corp.; Simon Straus, American Smelting & Refining; Clarence Glass, Anaconda Copper Mining; C. R. Cox, president, Kennecott Copper Co.; and Morris Lacroix, Copper Range Co.

The lead and zinc manufacturers to which telegrams were sent are: Marshall Harvey, New Jersey Zinc Co.; Simon Straus, American Smelting & Refining Co.; Charles Ince, St. Joseph Lead Co.; Miles Zohler, Eagle Pitcher Lead Co.; Clarence Glass, Anaconda Copper Mining Co.



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KEOKUK ELECTRO-SILVERY

Pig for pig... car for car... the quality and uniformity of Keokuk High Silicon Pig Iron never varies!

60 lb. pigs 30 lb. pigs 12½ lb. pigiets

KEOKUK ELECTRO-METALS COMPANY

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"MULTICUT" "TUFCUT" "HOT WORK"

Wapakoneta
SHEAR BLADES
and ROTARY KNIVES

Any type or size blade of proper Alloy with correct hardness and temper for every type shearing machine and every kind of job.

TOOL

Rx ENGINEERED TO THE JOB

Every Wapakoneta blade is made to exact specifications, designed for the particular job. Complete records with order number of each blade makes possible duplication of exact size and temper at any time.

The
WAPAKONETA MACHINE CO.
Shear Blade Specialists Since 1891
Wapakoneta, Ohio

Steel Industry Will Meet The Acid Test in Defense Role

New York—The steel industry's 1950 record is significant and assuring, stated Walter S. Tower, president of the American Iron and Steel Institute, in his year-end statement.

U. S. producers made about 97 million tons of steel during the year, exceeding the previous record by about 7.5 million tons. This output was only 12 days short of 100 million tons and still it was below the abnormally high demand. By the end of 1952, planned expansions will bring steel capacity in this country to at least 110 million tons annually.

Payrolls Top 1949's

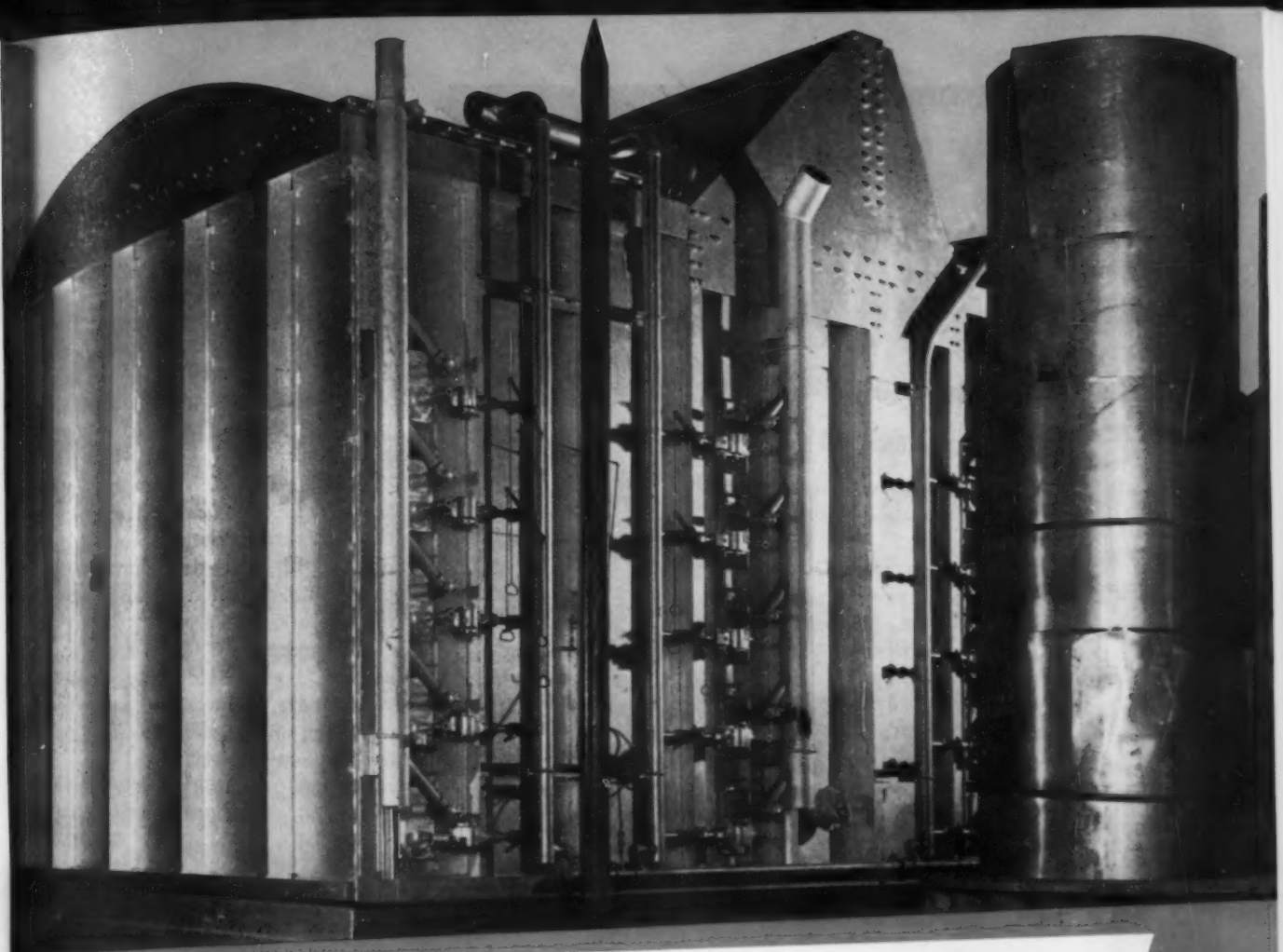
Since the end of World War II, steel companies have spent nearly $2.4 billion on their facilities. Steel payrolls exceeded $2.3 billion for the year, a rise of $300 million since 1949, reflecting increased wages and a zoom in employment from 602,000 to about 650,000 at the end of the year. Average hourly payments through most of the year were $1.72, which rose in December.

Most of the steel poured in 1950 went into consumer goods. Since 1946, steel companies have provided the steel for over 25 million new cars and trucks, 19 million new refrigerators, 4.5 million new homes, 54,000 miles of pipelines and numerous other items in record volume.

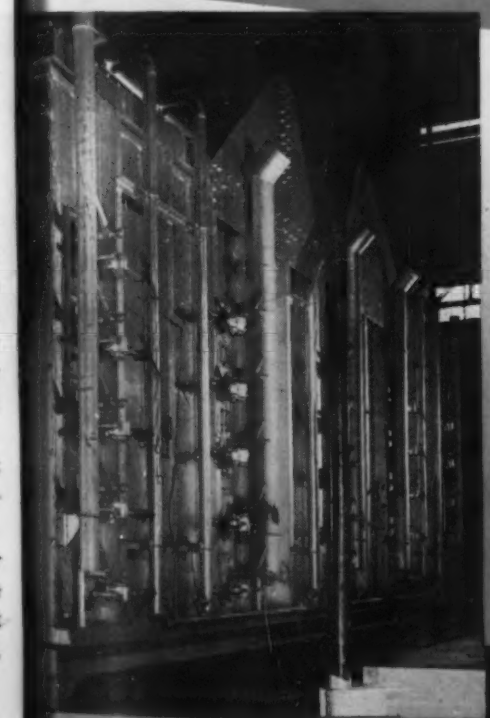
"The fact is that whether another world war at some early or later date decides the future fate of mankind, the United States can make all the steel needed for its military requirements and have a very generous amount left over for essential civilian uses," said Mr. Tower.

He pointed out, however, that other considerations might restrict civilian production.

Armament requirements for steel have been small and future requirements are not known, but the steel industry will meet the test, he said.



SWINDELL-DRESSLER



. . . constructs for JONES & LAUGHLIN the largest* coil sheet annealing furnace ever built.

Designed for high-speed production, the unit has every proved modern advantage—among them, high-capacity base fans plus high fuel input, contributing to outstandingly greater tonnage handled per shift. • Let Swindell-Dressler consult with you on your own annealing-furnace requirements.

To the best of our knowledge, this 37′x19′ furnace is the largest built to date in its field.

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CASE No. 395
Refrigerator Manufacturer

ANNUAL SAVINGS OF $30,000 over former hand trucking method. Conveyorizing paid for itself in 6 months.

(a) Savings in Effort (estimated).....35%
(b) Savings in Time.....25%
(c) Savings in Space.....30%
(d) Savings in damaged material of some 60%

QUOTING CUSTOMER'S* STATEMENT:

"We have a problem of segregating 18 different boxes from an almost continuous line of material so that they can be shipped or stored according to models and methods of packing or shipping. To do this job, Logan roller conveyor turntables have been installed in the main "feeder" lines, which permits selection of material from the assembly tracks. This method has realized a savings for our company of some $30,000 over the method used formerly of hand trucking and segregation. A savings in floor space amounted to 30% and in time of 25%. Damaged material from improper handling has been almost eliminated, thus making a savings along that line of some 60%. Experience has shown us that the roller conveyors used on the turntables and banks have stood up admirably well under the extremely rough usage they are subjected to. Maintenance cost is at a minimum."

*Name on request.



Case after case . . . in plants large and small . . . proves that it pays to conveyorize. There may be many operations in *your* plant which can profit through the use of Logan Conveyors. Write for your copy of enlightening book, "Key to Lower Costs."

Logan Conveyors

LOGAN CO., 545 CABEL ST., LOUISVILLE, KY.

Western Metal Congress Will Meet in California March 19-23

Cleveland — Papers by prominent metallurgical and mechanical engineers will highlight technical sessions of the American Society for Metals at the seventh Western Metal Congress and Exposition, March 19 to 23 in Oakland, Cal.

ASM, with 20 other national technical societies, will sponsor the 5-day educational meeting and display of new developments in producing, fabricating and applying metals.

Approximately 200 nationally known firms will display new developments. The ASM technical program, one of several sponsored by various societies, is under a committee headed by Earl R. Parker, University of California.

To Discuss Metals Problems

Sessions include papers by authorities, who will review frequent metallurgical problems.

More than 200 speakers are programmed for the Congress, with each ASM session devoted to an industry, such as aircraft, oil, large machinery, small equipment and shipbuilding. Other programs and exhibits will be devoted to mining, chemical and manufacturing industries.

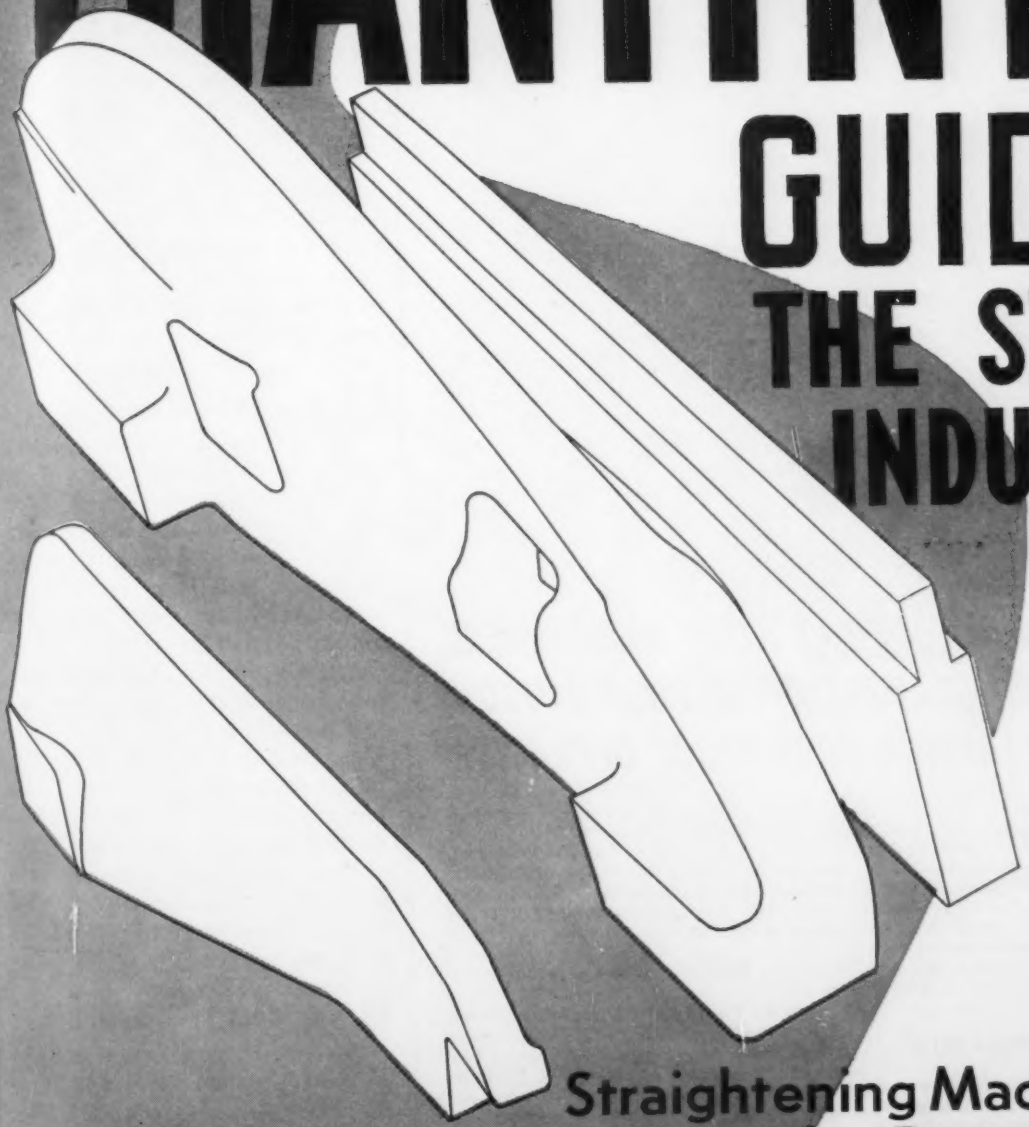
Many officers and trustees of ASM will take part in the technical programs, including Walter E. Jominy, staff engineer, Chrysler Corp., and ASM president.

Seminar Subjects

Discussion subjects will include high temperature, low temperature, fatigue and weld failures. Speakers also will include: J. H. Hollomon, General Electric Co.; A. E. Focke, Diamond Chain Co.; D. S. Clark, California Institute of Technology; J. B. Dotson, Nordstrom Valve Co.

Another seminar will be devoted to failures resulting from general corrosion, stress-corrosion, corrosion-fatigue and corrosion problems in the aircraft and oil industries.

TRANTINYL GUIDES THE STEEL INDUSTRY



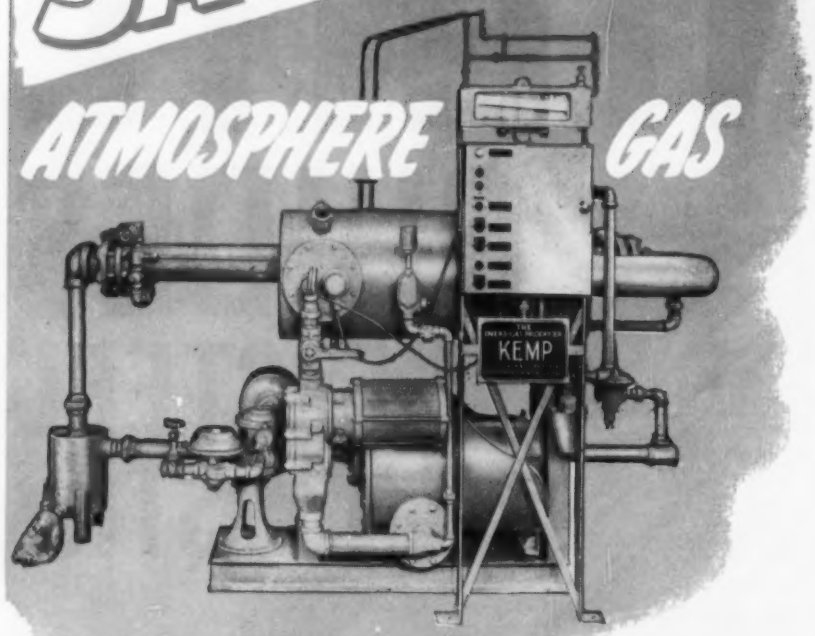
Straightening Machine Guide for Rounds and Pipe



YOUNGSTOWN ALLOY CASTING CORP., YOUNGSTOWN, OHIO

Production · Quality · Yield

SAVE! Time and Money PRODUCING . . . ATMOSPHERE GAS





2 NEW COMPACT KEMP ATMOSPHERE GENERATORS OFFER PUSH BUTTON STARTING, FOOL-PROOF OPERATION

IF YOU need a compact source of atmosphere gas, *save time and money*, specify Kemp! Two new Kemp Atmosphere Generators (models MIHE-1 and 2) deliver 1000 and 2000 cfh respectively. Both offer all features of larger equipment: push button starting, automatic fire check, flow meter, etc. . . and assure that you get *same analysis* gas from 1% to 100% of capacity.

FOOL PROOF OPERATION

Kemp Generators burn ordinary gas just as it comes from the mains. A famous Kemp Carburetor, part of each installation, assures *complete combustion* without "tinkering" to produce a clean, chemically inert gas containing 88% nitrogen, 12% CO^2 . . . a gas so pure it is used *without further processing* in copper annealing and in the manufacture of *aspirin* and *laboratory chemicals*, fine paints and a host of other products.

WRITE FOR DATA

Whether you need inerts for purging, fire protection, blanketing or any steel application . . . specify Kemp. For technical information write for Bulletin 1-11. *To find out how you can benefit:* tell us how you produce atmosphere gas now; we'll show you how Kemp can solve your problem. *Mail Coupon today!*

KEMP OF BALTIMORE — ATMOSPHERE GAS GENERATORS

CARBURETORS
BURNERS
FIRE CHECKS
ATMOSPHERE GENERATORS
ADSORPTIVE DRYERS
METAL MELTING UNITS
SINGEING EQUIPMENT
SPECIAL EQUIPMENT

THE C. M. KEMP MFG. CO., Dept. C-1
405 E. Oliver St., Baltimore 2, Md.

Gentlemen: Send me information on Kemp Generators. I am interested in Bulletin 1-11; data on larger equipment.

Name .....
Company .....
Address .....
City ..... Zone ..... State .....

Defense, Consumer Spending Expected to Up Business Volume

New York—Stepped up defense ordering and larger consumer purchasing power are expected to boost business volume from 5 to 15 pct during the first half of 1951, according to a survey conducted by the Commerce and Industry Assn.

Of the 305 New York firms questioned, more than half expected a rise in volume of business. Of the others, 24 pct expect business volume to remain about the same, and only 18 pct anticipate a decline during the coming year.

Impact of Defense Spending

The impact of defense spending looms as the biggest factor in the business future of concerns questioned. The firms, employing about 235,000 persons, represent a cross-section of industry, and include machinery and metal products, paper, publishing, textiles, foods, chemicals, plastics, export, import, insurance, finance, real estate and transportation.

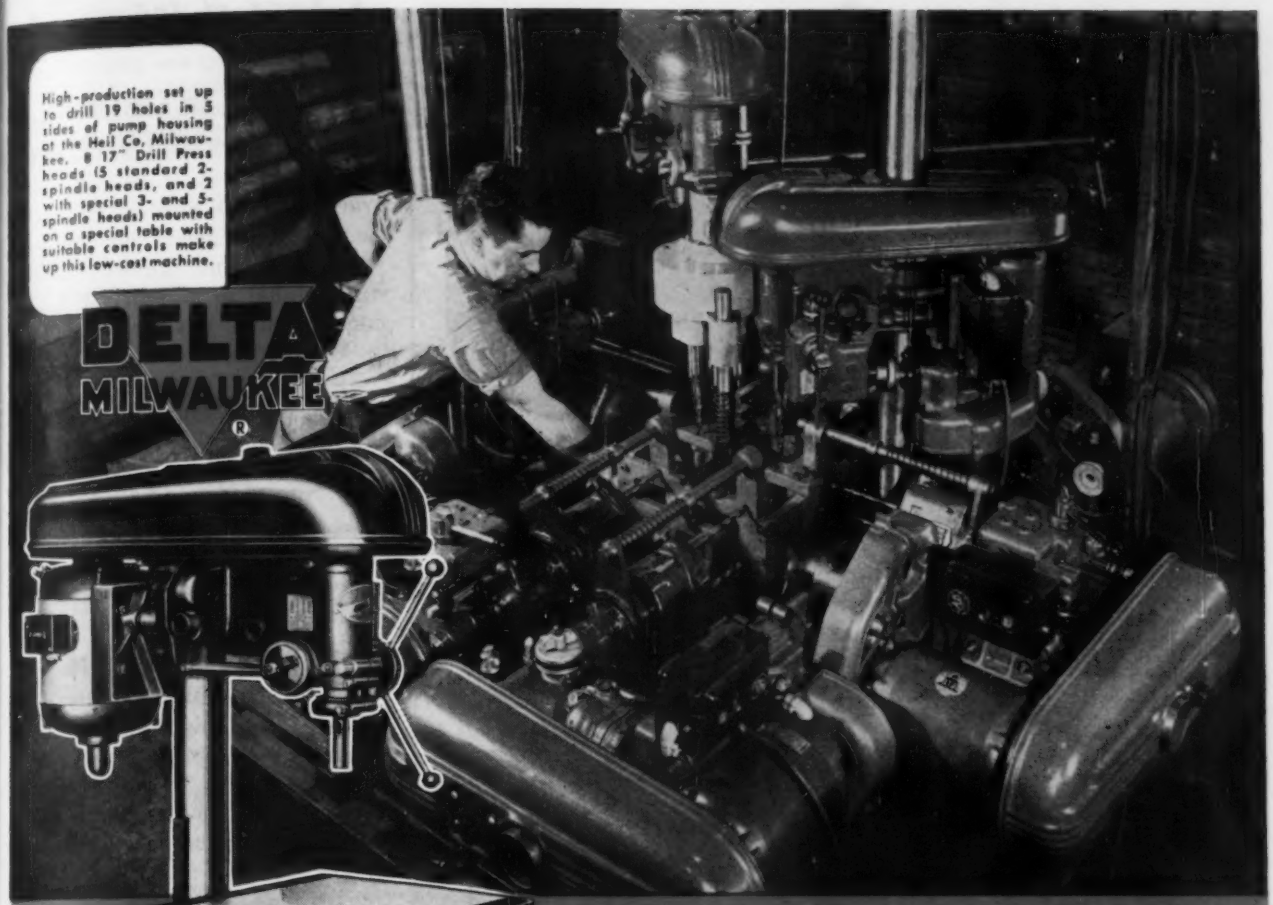
Barring a roll-back in prices, business almost unanimously looks for an increase in prices. More than 76 pct expect price rises of 5 to 25 pct. Business volume in 1950 equalled or was higher than 1949 volume more than 81 pct of the firms reported.

NE War Work to $138 Million

Boston—Defense contracts let in New England since beginning of the Korean conflict have climbed to $138 million, with the November total reaching a record $30 million, according to the New England Council.

Recent top-dollar contracts were the $2 million award to Bath Iron Works, Bath, Me., for conversion of two destroyers; an award of $1,635,250 to the Atlantic Parachute Co. of Lowell, Mass., and an award of $1,964,250 to the American Woolen Co.

An order for 43,137,000 plastic spoons was placed with the Van Brode Milling Co. of Clinton, Mass.



High-production set up to drill 19 holes in 5 sides of pump housing at the Heil Co, Milwaukee. 8 17" Drill Press heads (5 standard 2-spindle heads, and 2 with special 3- and 5-spindle heads) mounted on a special table with suitable controls make up this low-cost machine.

Delta Drilling from every Direction!

Build your own special equipment at low cost around Delta accuracy and flexibility!

Delta 17" Drill Press

Complete selection to meet every need — with the right chuck capacity, the right speed . . . in floor and bench types . . . single spindles, multi-spindle batteries, individual heads for special set-ups . . . power-feed — and a complete line of accessories for every model. The same selection in 14" drill presses. All told, 144 different models at prices from $77.50 to $2,892.50.

When you think of drilling think of Delta! Your own imagination plus the amazing adaptability of standard Delta drill presses or components can crack the toughest problem. Look what the Heil Co. did (above) with 8 Delta heads! One operator drills 19 holes in a casting—in a floor to floor time of 2.8 minutes! And at a fraction of the cost of a special-purpose machine, or a multi-station operation!

Do the same in your shop! The sealed, lubricated-for-life ball bearings in Delta drill heads let you drill from all directions — vertical, sideways, upside down, at all angles — without lubrication problems.

Send for complete details—and plan your jobs around the versatility of dependable Delta Tools — high in quality, low in cost! Delta's engineering service is always ready to help you.

Sold only through authorized dealers — available on easy time payments. . . . Look for the name of your Delta dealer under "Tools" in the classified section of your telephone directory.

DELTA POWER TOOL DIVISION
Rockwell
Manufacturing Company
MILWAUKEE 1, WISCONSIN

Delta • Multiplex • Crescent • Homecraft

From the world's most complete line

First in Selection!
First in Quality!
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6 TIMES A YEAR

The Power Tool Journal—packed with detailed job data, fully illustrated — handbook of time- and money-saving shop ideas!

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Keeping "expert" in producing only Cap Screws, Set Screws and Milled Studs—plus "specials" made to customers' designs—is assurance that Cleveland's policy of Specialization brings you *Top Quality* Fasteners. We concentrate on making a *few* items *well*. . . . It's important, too, that by specializing we can make the much abused word "Service" really *mean* something. . . . It pays you to specify and buy Cleveland *Top Quality* Fasteners.

THE CLEVELAND CAP SCREW COMPANY
2917 East 79th Street, Cleveland 4, Ohio
Warehouses: Chicago, Philadelphia, New York, Providence

CLEVELAND *Top Quality* **FASTENERS**

ORIGINATORS OF THE KAUFMAN DOUBLE EXTRUSION PROCESS
Specialists for more than 30 years in
CAP SCREWS, SET SCREWS, MILLED STUDS
Ask your jobber for Cleveland Fasteners

Giant Motors, Air Compressor Ordered for New USAF Wind Tunnel

Pittsburgh—A U. S. Air Force order for $20 million worth of electrical equipment for the new jet engine and guided missile wind tunnel to be built at Tullahoma, Tenn., has been received by Westinghouse Electric Corp.

Two of the four motors will be the most powerful in the world, exceeding the 65,000 hp rating of motors in service at Grand Coulee Dam, Washington. The air compressor, to be built at Sunnyvale, Calif., will produce an air current faster than the speed of sound

Ask Stainless Pipe Standard

New York—Manufacturers of stainless steel pipe, meeting with representatives of the chemical industry at the American Standards Assn., have requested inclusion of Schedule 5S, for lightweight stainless steel pipe and fittings in an American Standard. Nominal wall thickness under schedule 5S are: ½ in. to 2 in. diameter tubing, 0.065 in.; 2½ in. to 4 in., 0.083 in.; 5 in. to 8 in., 0.109 in.; 10 in., 0.134 in.; 12 in. dia., 0.165 in.

Cook New President of EITA

Philadelphia—C. B. Cook of Cleveland has been elected president of the Electric Industrial Truck Assn. Elmer F. Twyman was elected vice-president; William Van C. Brandt was reelected secretary and treasurer.

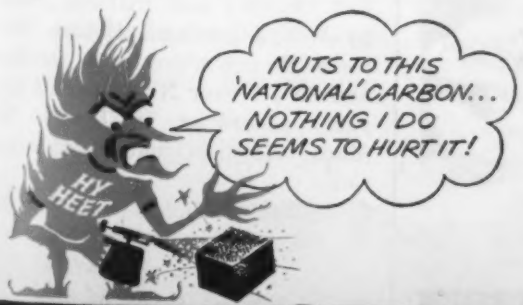
Clark Equipment Co. of Battle Creek, Mich., was admitted to membership in the association, it was announced.

Katy Buys 11 Diesel-Electrics

St. Louis—Purchase of 11 diesel-electric locomotives by the Missouri Kansas Texas R.R. has been announced. Two 1600 hp units were purchased from American Locomotive Co., five 2200 hp units from Electro Motive Div. of General Motors Corp., and one 1600 hp unit from Fairbanks Morse Co.

The term "National" is a registered trade-mark of
NATIONAL CARBON DIVISION
UNION CARBIDE AND CARBON CORPORATION
30 East 42nd Street, New York 17, N. Y.
District Sales Offices: Atlanta, Chicago, Dallas, Kansas City, New York, Pittsburgh, San Francisco
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15 blast furnaces in the U.S. have each produced over 1,000,000 tons of iron on a single "National" carbon lining . . . and are still going strong!



BLAST FURNACE LININGS • BRICK • CINDER NOTCH LINERS • CINDER NOTCH PLUGS • SKIMMER BLOCKS • SPLASH PLATES • RUNOUT TROUGH LINERS • MOLD PLUGS • TANK HEATERS

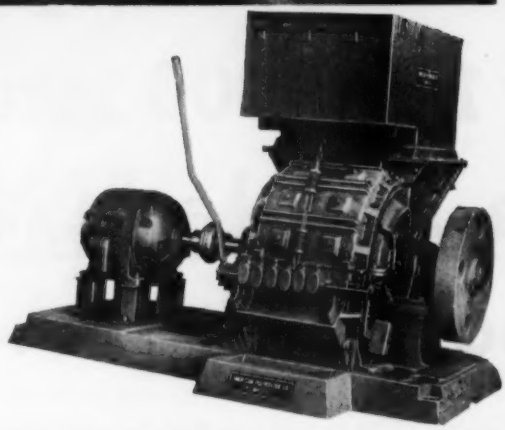
TIMKEN TURNS METAL SCRAP INTO EXTRA PROFITS

This "busy-looking" American Crusher #3800 is one of five used by the Timken Roller Bearing Company in processing 28,198 tons of metal turnings last year at its Canton, Ohio plant.



AMERICAN
METAL TURNINGS
CRUSHERS

pay off in
3 ways . . .



1. TOP SCRAP VALUE. With scrap prices rising, the uniform short shoveling lengths produced by Americans are bringing $2 to $3 per ton more than machine shop turnings.

2. INCREASED CUTTING-OIL RECOVERY. Up to 50 gallons per ton are released from turnings that have been reduced by American Crushers.

3. EASIER HANDLING, STORAGE. American-reduced chips lend themselves to better briquetting . . . require a fraction of the usual storage space.



American Metal Turnings Crushers are designed to reduce turnings of alloy steel, carbon steel, aluminum, brass, bronze, etc. quickly and economically. Available in capacities from 1 to 10 TPH.

WRITE for Bulletin on Metal Turnings Crusher

American PULVERIZER COMPANY
Originators and Manufacturers of Ring Crushers and Pulverizers
1439 MACKLIND AVE.
ST. LOUIS 10, MO.

U. S. Steel Limestone Units Merge; New Offices in Detroit

Pittsburgh—Merger of two subsidiaries of United States Steel Corp., Pittsburgh Limestone Corp. and Michigan Limestone & Chemical Co., as a single operating subsidiary has been announced by Benjamin F. Fairless, U. S. Steel president. The merger was effective Jan. 2, 1951.

New executive offices will be established in Detroit. District operating headquarters will continue at Rogers City, Mich., New Castle, Pa., and Buffalo, N. Y.

Irvin L. Clymer, head of both present subsidiaries, will become president of the new company. Other officers are: J. P. Kinville, assistant to president and treasurer; H. S. Lewis, vice-president, operations; C. F. Platz, vice-president, sales; H. R. Baltzersen, controller and assistant secretary; John G. Patterson II, secretary.

TTMA Annual Convention Jan. 21-23

Washington — Leland James, president of the American Trucking Assn. and head of Consolidated Freightways, Inc., of Portland, Oregon, will be the feature speaker at the annual convention of the Truck-Trailer Mfrs. Assn. in the Edgewater Gulf Hotel, Edgewater Park, Miss., January 21-23.

Federal officials handling transportation problems have been invited to attend the conference and give their views on over-the-road freight problems.

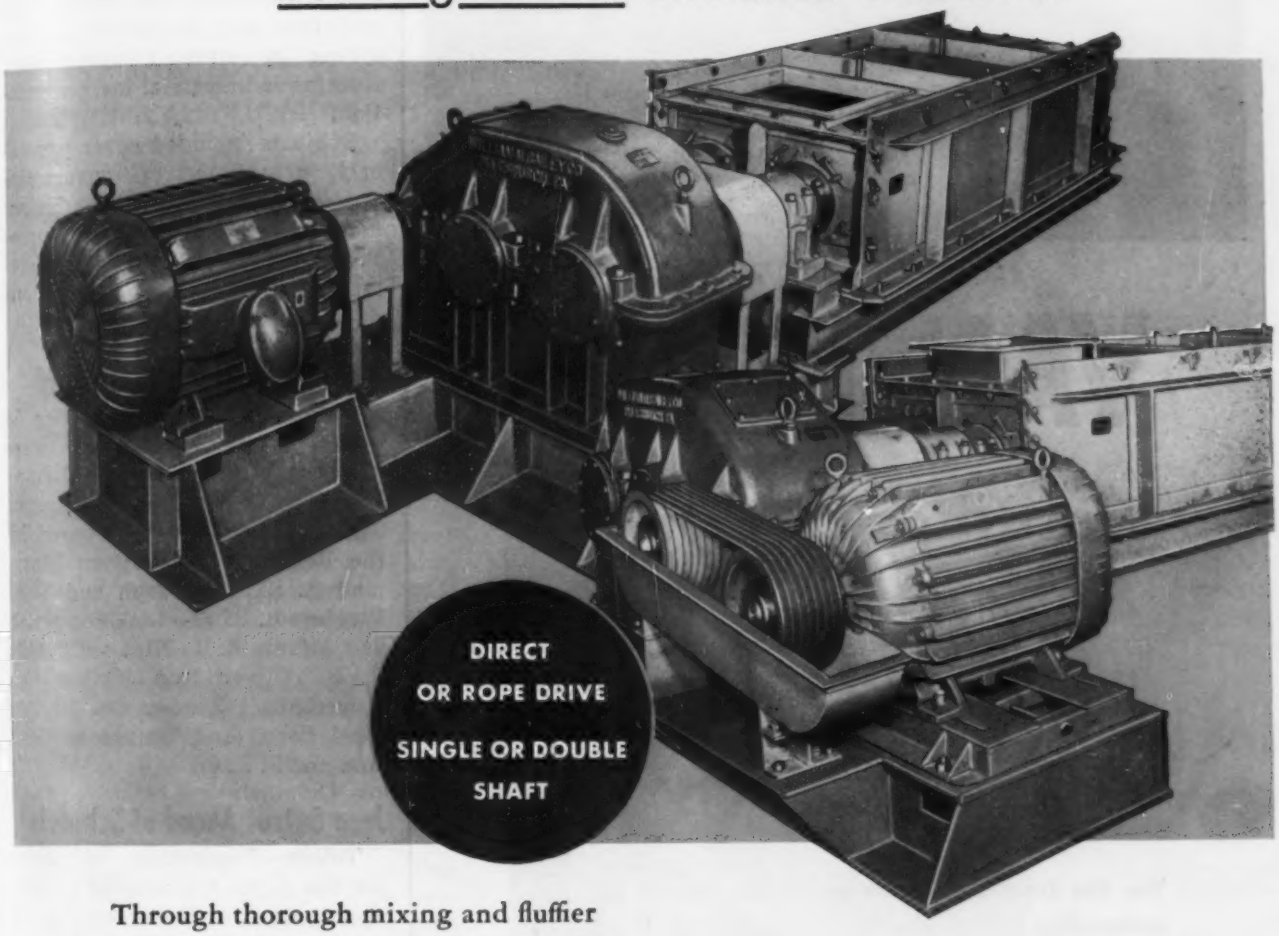
Willys Truck Sales Climb

Toledo—November sales of sedan delivery and half-ton trucks by Willys-Overland Motors, Inc., were 23 pct more than October and 20 pct over November of last year, according to Lyman W. Slack, vice-president of distribution.

Dealers' 10-day reports for the middle of the month indicated sales approximately two and a half times as great as those of the first 10 days of November. Sales continued to climb during the remainder of the month.

Bailey SINTERING PLANT PUG MILLS

PERMIT A *more uniform,*
***better grade of* SINTERED PRODUCT**

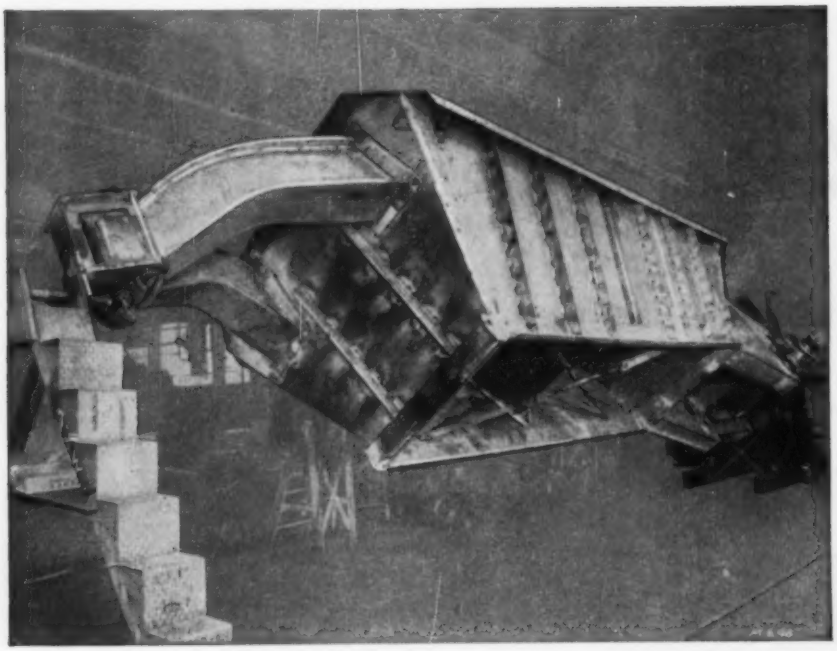


Through thorough mixing and fluffier material, the Bailey Sintering Plant Pug Mill produces a *better* sintered product. With this machine, a higher bed can be used without increasing the wind box vacuum. The result is greater tonnage of more uniform, better grade materials.

These mills can be built to any desired capacity, direct or rope drive, single or double shaft.

Send for new bulletin giving full information on all Bailey Pug Mills.

Bailey
ENGINEERS
1221 BANKSVILLE ROAD PITTSBURGH 16, PA.



VAN DORN

Weldments Feature

★ *Strength*

★ *Uniformity*

★ *Economy*

Yes, Van Dorn Weldments are widely known for their outstanding quality—for they are backed by Van Dorn's complete fabricating facilities . . . experienced design engineers . . . specially trained workmen . . . 77 years' experience in metal working.

Consult us about your requirements—no obligation, of course. The Van Dorn Iron Works Co., 2685 East 79th Street, Cleveland 4, Ohio.



Send For

FREE WELDMENT BOOK

● *Profusely illustrated; describes the many advantages of weldments, and Van Dorn's extensive facilities.*

Expands Company School

Philadelphia—New courses are being offered starting Jan. 8 at the school of the Minneapolis-Honeywell Regulator Co. here. The courses are designed to meet customers' needs and will cover maintenance and repair of industrial instruments.

Classes will be held on a 3-, 5- and 13-week basis with the shorter courses offering concentrated instruction and the longer courses giving a more comprehensive training in industrial instrumentation.

Subjects included cover pyrometry, potentiometers, pneumatic-automatic control, transmission, flow meters, thermometers, pressure gages, hygrometers, tachometers, gas analysis, pH and conductivity instruments.

More Diesel-Electrics Ordered

Philadelphia — Orders for 58 diesel-electric locomotives were placed with Baldwin-Lima-Hamilton Corp. during November. The locomotives were ordered by the Reading Co., Western Maryland R. R., Pittsburgh and West Virginia R. R., Soo Line, Savannah and Atlanta R. R., Missouri Pacific R. R., Oliver Iron Mining Co., Weyerhauser Timber Co., Sharon Steel Corp., and Tennessee Coal, Iron and R. R. Co.

Jeep Output Ahead of Schedule

Toledo—Production of Jeeps for the Army will exceed government quotas in December for the third month, Ward M. Canaday of Willys-Overland Motors, has announced. Jeeps are being produced on the same assembly line used for civilian Jeeps and trucks. By April, output is expected to be 200 pct above the present rate.

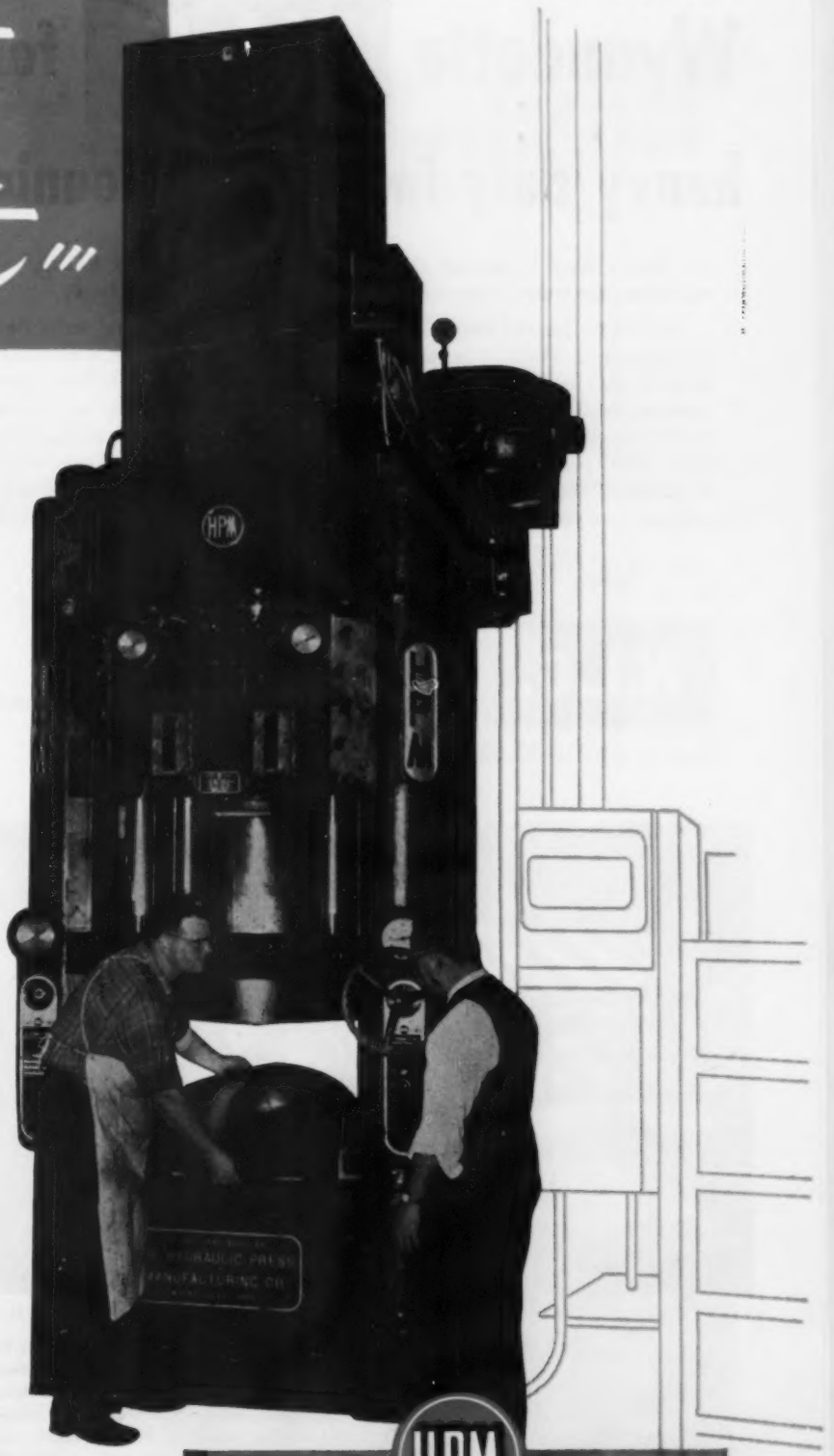
Rheem Earnings at Record High

New York — Rheem Mfg. Co. third quarter earnings rose to record proportions of $1,624,840, only $220,000 less than net earnings for the entire first half. Approximately 10 pct of the company's sales is going directly into defense contracts and all of this is in steel containers.

SERVING INDUSTRY THROUGH HYDRAULICS

short 'n sweet"

SPERRY GYROSCOPE COMPANY ECONOMICALLY USES 150-TON H-P-M PRESS ON SHORT RUNS FOR MORE THAN A HUNDRED DIFFERENT DRAWING JOBS!



● Versatile and yet economical production is an accomplished fact in the pressed metal department of Sperry Gyroscope Company's Lake Success, N. Y., Plant.

With an H-P-M 150-ton FASTRAVERSE Press, Sperry handles runs of 300 pieces per set-up on 101 different jobs—jobs that vary greatly in size, depth of draw, and gauge of metal (2SO, 3SO or 52SO aluminum sheet is used).

The big factor in this production picture can be found in the exclusive operational features of the H-P-M press itself. H-P-M's FASTRAVERSE hydraulic power system provides quick and easy adjustment of press speeds, strokes and pressures to suit each individual die set-up and part to be drawn . . . cutting set-up time to a minimum . . . protecting dies . . . and assuring parts production with negligible scrap loss.

Find out about versatile H-P-M FASTRAVERSE Presses today—and how they can cut costs out of your present production methods— an H-P-M Engineer will gladly provide you with complete details.



Write today for your free copy of Bulletin 5005 which completely describes H-P-M FASTRAVERSE and other special purpose H-P-M Presses.

HPM

THE HYDRAULIC PRESS MFG. CO.

1006 MARION ROAD - MT. GILEAD, OHIO, U. S. A.

Makers of Presses for the Metal Working and Processing Industries - Plastic Molding Presses - Die Casting Machines - Hydraulic Pumps, Valves and Power Units

Wyandotte W.L.G. for heavy duty immersion cleaning

For heavy duty immersion cleaning you need Wyandotte W.L.G.* It conditions the water, removes fabricating compounds, rinses freely.

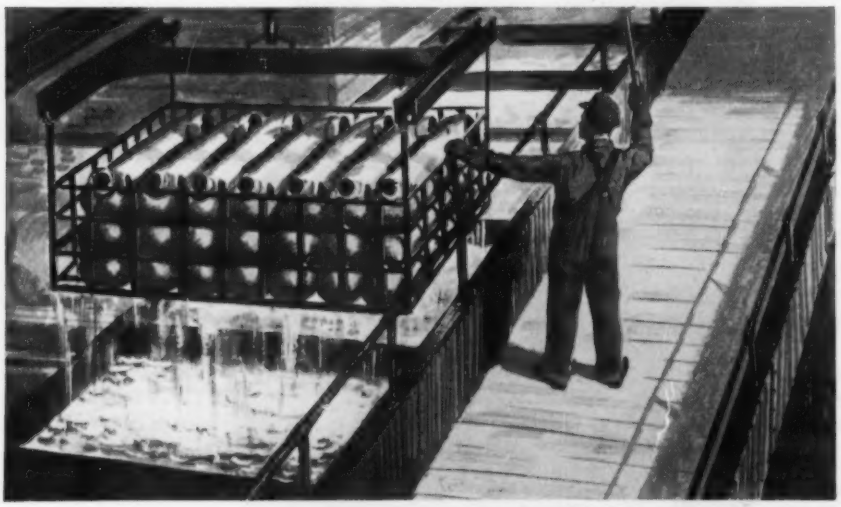
Try W.L.G. for still tank cleaning of any ferrous metal and some non-ferrous metals. (Such as copper and most copper alloys but NOT aluminum or its alloys.) Try W.L.G., too, for tumble barrel cleaning and in rotary type washing machines. It will do an excellent job for you prior to vitreous enameling, barrel plating of zinc or cadmium, dip type phosphate treatment before painting, or overhaul cleaning of engine parts, etc. Experienced Wyandotte Representatives are available. When you need technical assistance in your shop, call the nearest Wyandotte man. *Reg. U. S. Pat. Off.

WYANDOTTE

W.L.G.

Heavy duty immersion cleaner

- *Dissolves completely*
- *Conditions hard water*
- *Removes mineral and saponifiable fabricating compounds*
- *Cleans ferrous and non-ferrous metals*
- *Rinses freely*
- *Has long life in solution*



"Cleaning the World"

THE WYANDOTTE LINE—products for burnishing and burring, vat, electro, steam gun, washing machine, and emulsion cleaning, paint stripping, acid pickling, related surface treatments and spray booth compounds. ***An all-purpose floor absorbent:*** Zorball—**in fact, specialized products for every cleaning need.**

Wyandotte Chemicals Corporation
WYANDOTTE, MICHIGAN
Service Representatives in 88 Cities

Wyandotte
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production ideas

Continued from Page 40

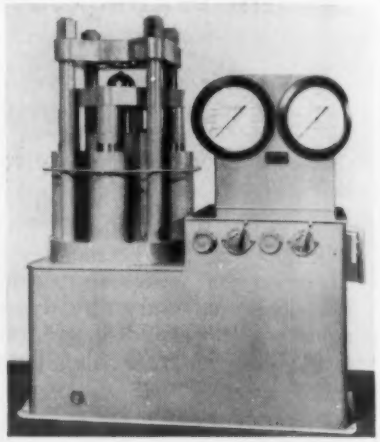
stops to provide pressure relief. A 220-440 v 5 hp motor has a magnetic brake. Water and electrical services are integral with the machine. *Grav-i-Flo Corp.*

For more data insert No. 37 on postcard, p. 37.

Ductility Tester

Detects surface and sub-surface imperfections in deep-drawing steel.

A new ductility testing machine provides a total capacity of 250,000-lb pressure and incorporates a 5-in. diam penetrator. Purpose of the unit is to detect surface and subsurface imperfections in deep-drawing steel over a comparatively large area. The machine is motorized, hydraulically operated and has separate controls for clamping the sample and for regulating the penetrating pressure. Equipped with a set of three dies for use with different gages of metal, the machine will test material up to ¼ in. thick. *Steel City Testing Machines, Inc.*



For more data insert No. 38 on postcard, p. 37.

Master Control System

Electronically operated, for combustion and process control.

A new electronic master control system, called Telemaster, provides such automatic control features as complete freedom of control centralization, simplified and smaller control panels, elimination of transmission lags and greater accuracy and speed of response. The use of an electronic link, connecting mas-

A Thirrifty Thought



Have you considered using Boron as an alloying agent to help conserve the critical materials . . . Chrome, Manganese, Nickel and Molybdenum?

Borosil is a proven and economical alloy for making Boron additions. Borosil consists of 3 to 4% Boron, 40 to 45% Silicon and the remainder Iron. This diluted Boron alloy is ideally suited for ladle additions.

Borosil is immediately available in following sizes to meet your requirements . . . Standard lump, 2" x Down, ½" x Down, and 8 Mesh x Down.

FERRO-SILICON 25 - 50 - 65 - 75 - 85 - 90%
SPECIAL BLOCKING 50% FERRO-SILICON
LOW CARBON FERRO-CHROME SILICON
HIGH CARBON FERRO-CHROME
FERRO-MANGANESE • BOROSIL • SIMANAL

BRIQUETS

SILICON • MANGANESE • CHROME
SILICO - MANGANESE

PHILO — DEPENDABILITY · QUALITY · SERVICE — RAINIER

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Ohio Ferro-Alloys Corporation
Canton, Ohio

Chicago Detroit Pittsburgh Tacoma Seattle
Minneapolis Birmingham San Francisco Los Angeles

SALES AGENTS AND WAREHOUSES:

SAN FRANCISCO AREA—Pacific Graphite Company, Inc., Oakland 8, California.

LOS ANGELES AREA—Snyder Foundry Supply Company, Los Angeles 11, California.

MINNEAPOLIS AREA—Foundry Supply Company, Minneapolis, Minnesota.

MEXICO—Casco S. de R. L., Apartado Postal 1030, Calle Atenas 32-13, Mexico, D. F., Mexico.

SALES AGENTS, NO WAREHOUSES:

NORTHWEST AREA—E. A. Wilcox Company, Arctic Building, Seattle 4, Washington; Phone Mutual 1468.

BIRMINGHAM DISTRICT—Schuler Equipment Company, First National Building, Birmingham, Alabama.

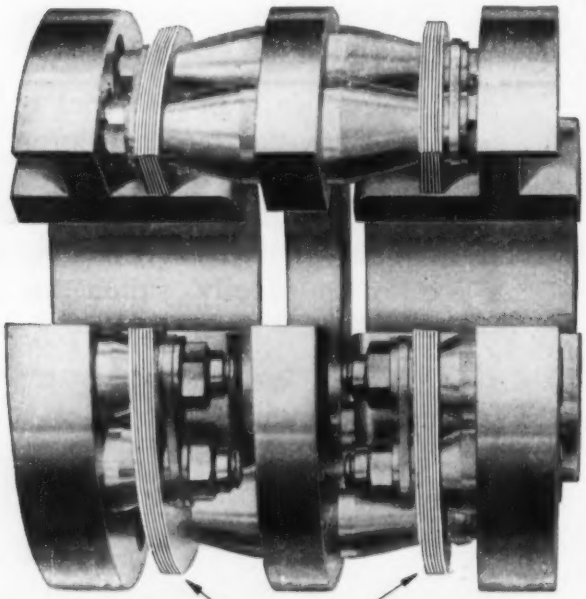
THOMAS *Flexible* ALL METAL COUPLINGS

FOR POWER TRANSMISSION • REQUIRE NO MAINTENANCE

Patented Flexible Disc Rings of special steel transmit the power and provide for parallel and angular misalignment as well as free end float.

Thomas Couplings have a wide range of speeds, horsepower and shaft sizes: ½ to 40,000 HP — 1 to 30,000 RPM.

Specialists on Couplings for more than 30 years



PATENTED FLEXIBLE DISC RINGS

BACKLASH FRICTION WEAR and CROSS-PULL are eliminated LUBRICATION IS NOT REQUIRED!

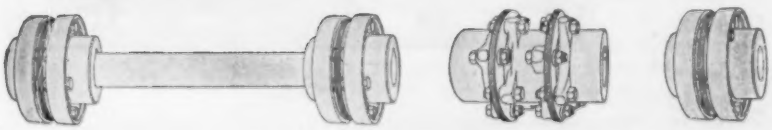
THE THOMAS PRINCIPLE GUARANTEES PERFECT BALANCE UNDER ALL CONDITIONS OF MISALIGNMENT.

• • •

NO MAINTENANCE PROBLEMS.

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ALL PARTS ARE SOLIDLY BOLTED TOGETHER.



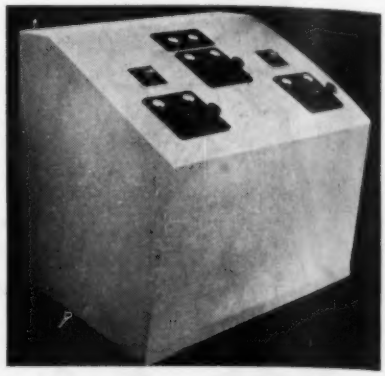
Write for the latest reprint of our Engineering Catalog.

THOMAS FLEXIBLE COUPLING CO.
WARREN, PENNSYLVANIA

production ideas

Continued

ter to actuator, eliminates the distance problem created by centralization. The Telemaster combines the null-balance principle of detection and the electronic transmission of control information, to form a



highly responsive control system that is said to be remarkably fast in completing adjustments, regardless of the distances involved. The benchboard control panel illustrated is evidence of the smaller and more compact panel units. This benchboard contains all the elements of the master control. *Republic Flow Meters Co.*

For more data insert No. 39 on postcard, p. 37.

Pyrometer Equipment

Temperature indication and control; protection for furnaces and ovens.

New pyrometer equipment offers accurate temperature indication, close temperature control of industrial processes and protection for furnaces, ovens and kilns. The



complete line consists of flush or surface-mounted indicators, controllers and protectors. The instrument is said to have a calibrated accuracy within ¾ of 1 pct of full scale. A 7-in. scale, fitted with an anti-glare cover, indicates any change in temperature equivalent to 1/10 of 1 pct of full scale.



how Farrel® can help solve your Rolling Mill problems?

For Example:

WITH FARREL ROLL GRINDERS—Reports from users indicate that the latest type Farrel machines regrind rolls in record time. In addition, they find that the rolls are accurately ground with a perfect surface free from marks of any kind. Faster grinding means increased productive capacity of the machine and lower labor cost per roll ground.

WITH FARREL ROLLING MILLS—For almost a century, Farrel mills have been helping to solve rolling mill production problems. Designed to meet specific requirements, they are built in a wide range of types and sizes for rolling nonferrous rods, strips or sheets, metal foils and cold strip steel. The company also designs and manufactures the reduction gear drives and pinion stands, coilers and special handling equipment required to make each installation a complete unit.

WITH SPEED REDUCERS FOR AUXILIARY DRIVES—Farrel speed reducers have been developed for continuous, trouble-free operation under difficult service conditions. Without sacrificing the advantages of general standards, the design of these units permits an engineering freedom in proportioning gears, shafts, bearings and even some housing dimensions to meet specific load, speed and service requirements. This flexibility has resulted in the solution of innumerable application problems.

INFORMATION and engineering consultation regarding any of the products mentioned on this page are available, without obligation.

FARREL® ROLLING MILL MACHINERY

Rolls • Rolling Mills • Rod Mill Tables and Manipulating Equipment • Universal Mill Spindles • Rod Coilers • Gears • Mill Pinions • Pinion Stands • Gear Drives of any Capacity • Flexible Couplings • Roll Grinding Machines • Roll Calipers • Lead Presses for Pipe or Rod

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Plants: Ansonia and Derby, Conn., Buffalo, N. Y. *Sales Offices:* Ansonia, Buffalo, New York, Akron, Pittsburgh, Chicago, Los Angeles, Houston

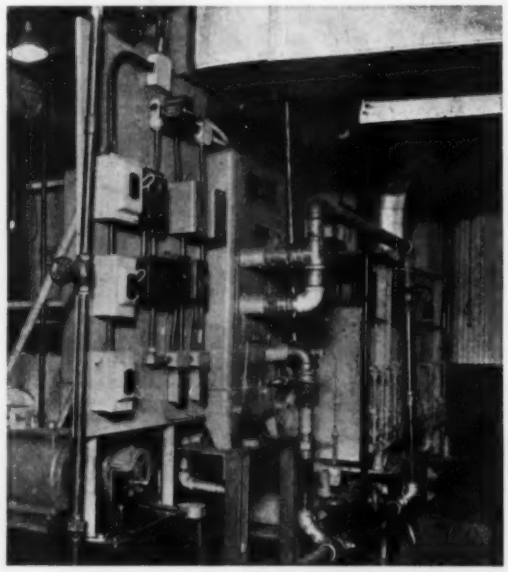
Farrel-Birmingham®

FB-645

Improve Quenching and You Get Better Heat Treating

Your Department can have a better arrangement with Niagara Equipment that saves much space and increases your production.

This quench bath cooler gives you control of temperature and pays for itself quickly with water savings



● The NIAGARA AERO HEAT EXCHANGER transfers the heat from the quench bath to atmospheric air by evaporative cooling. It never fails to remove the heat at the rate of input, giving you real control of the quench bath temperature. This prevents flashing of oil quenches. In all cases it improves physical properties, saves loss of your product from rejections and gives you faster production, increasing your heat treating capacity. You can put heat back into the quench bath to save the losses of a "warm-up" period.

Savings in piping, pumping and power as well as great savings in cooling water return the cost of the equipment to you in a short time. The Niagara Aero Heat Exchanger saves nearly all of the water consumed by conventional cooling methods.

For the complete story of other benefits and savings, write for Bulletin 96.

NIAGARA BLOWER COMPANY

Over 35 Years Service in Industrial Air Engineering

Dept. IA, 405 Lexington Ave. New York 17, N. Y.

Experienced District Engineers in all Principal Cities

production ideas

Continued

Immediate control action follows. The indicating device is a millivoltmeter, connected to a thermocouple on the furnace. The controller provides on-off action of the final control element by a relay, mercury switch, or contactor through which electric power is supplied to the furnace or oven. The protector is used in conjunction with and to protect against the possible failure of a separate precision controller. *General Electric Co.*

For more data insert No. 40 on postcard, p. 37.

Ac Arc Welders

Designed for heavy duty, 'round-the-clock production welding.

The new industrial welders are available in sizes 200, 300 and 400 amp. capacities. One of the key construction features of the new 80



Series welders is the use of Hipersil steel transformer cores, which provide one-third greater flux-carrying capacity, said to reduce power consumption and operating costs. *Marquette Mfg. Co.*

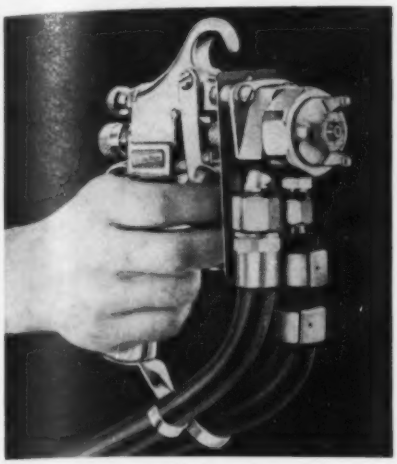
For more data insert No. 41 on postcard, p. 37.

Steam Spray Gun

Dry, super-heated steam is used as an atomizing medium to heat paint.

A complete line of equipment for spraying paint with steam includes a new spray gun that uses superheated steam instead of compressed air. The use of steam as an atomizing medium to heat finishing materials makes it possible to use materials of higher viscosity and al-

lows the application of heavier coats without sagging or running. New insulation and radiation design features dissipate the heat caused by the steam in the gun, enabling the operator to use the gun continuously in comfort with bare hands. Hose supports for steam and mate-



rials reduce the downward torque on the spray head, making it more easily balanced and less tiring for the operator. Other features include a built-in finger guard, an adjustable fluid needle and a spray head with one-piece, easy-to-clean steam cap and fluid nozzle. *American Brake Shoe Co., Kellog Div.*

For more data insert No. 42 on postcard, p. 37.

Regulator-Flowmeter

For the measurement of argon flow.

A new, direct-reading combination regulator and flowmeter, R-502, is designed for use with



Heliarc welding, argon metal arc welding, and other related processes. The instrument has a new three-stage regulator that maintains constant inlet pressure and



How can you measure cutting fluids by price alone...

when you read reports like this

	OLD METHOD		NEW METHOD	
Grinding Fluid	Soluble Oil		SuperKool 81X Grinding Oil	
Material and Hardness	Steel Forgings Rc 30-36		SuperKool 81X Grinding Oil	
Stock Removal	VALVE STEM Finish Grind .004"-.006" in 2 passes	VALVE FACE Rough Gr. .006"-.008" Finish Gr. .004"-.006" in 2 passes	VALVE STEM Finish Grind .004"-.006" in 1 pass	VALVE FACE Rough and Finish Grind in 1 pass .014"
Average Production per Wheel Dressing	350-400pcs.	300-350pcs.	2000pcs	1200pcs
Total Life of Wheels	Maximum of One Week		Eight Weeks	
Grinding Fluid Cost on Machine	About $.02 per gallon		$.66 per gallon*	

*This figure does not take into consideration the reclaiming of straight oils which usually reduce the cost at least 80%.

Price per gallon is not the measure of a cutting fluid. The right oil for the job is the one that produces the best results. In this instance, it is obvious that the application of an inexpensive soluble oil was incorrect for the job and the application of a more expensive grinding oil was 100% right. Ask to have a Stuart sales engineer show you how the right oil for the job can improve your efficiency. Write for the latest literature on cutting fluids.

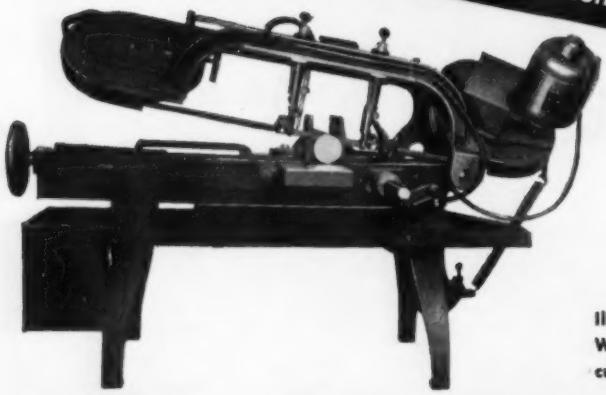
D.A. Stuart Oil Co.

2737 S. Troy Street, Chicago 23, Illinois

On cut-off jobs . . .

You benefit 4 ways with Wells Saws

1. Fast, continuous cutting action.
2. Greater accuracy on each job.
3. More pieces per length of stock.
4. Greater overall economy.



Illustrated is the popular Wells No. 8 with wet cutting system.

Our 25th year of service

HORIZONTAL band sawing is the modern, cost-cutting way to handle cut-off jobs . . . and Wells Saws are the leaders among horizontal metal cutting band saw machines. Simplicity of design means fewer moving parts and easy operation. Ruggedly built to increase productivity and reduce cutting costs, a Wells Saw pays for itself quickly and will give you years and years of dependable, satisfactory service.

BIG JOBS or LITTLE Jobs . . . There's a "WELLSAW" to meet your Metal Cutting Requirements. Check the table below and write for complete descriptive information or a job demonstration.

MODEL	49 A	No. 5	No. 8	No. 12
Capacity in inches: Rounds Rectangular	3½ 3½ x 6	5 5 x 10	8 8 x 16	12¾ 12 x 16
Blade speeds, ft. per min.	54, 100, 190	60, 90, 130	60, 90, 130	50, 100, 150
Motor Size	1/6 H.P.	½ H.P.	½ H.P.	¾ H.P.
Floor Space, in inches	16½ x 38	21 x 50	24 x 72	32 x 78
Wet cutting system	No	Yes	Yes	Yes

Automatic stock projection available for Nos. 8 and 12.

Wells Saws

Wells

Products by Wells are Practical

METAL CUTTING BAND SAWS

WELLS MANUFACTURING CORPORATION
202 WASHINGTON AVE, THREE RIVERS, MICH.

production ideas

Continued

accurate flow. Factory presetting of the second stage of the regulator delivers argon at a constant pressure of 20 psi. The flowmeter, with a finger-tip control adjusting valve, permits accurate, steady flow rates up to 60 cu ft per hr. The same design features are incorporated in a second regulator-flowmeter, the R-503, for use with helium. *Linde Air Products Co.*

For more data insert No. 43 on postcard, p. 37.

Fingerlift Attachment

Eliminates pallets in handling crates; results in manpower saving.

A fingerlift-equipped electric truck handles crates without the use of pallets and no manpower other than the lift truck driver is required. One truck can place two or three crates at a time depending on size of crates. Design of



the attachment embodies a series of spring loaded fingers mounted on a horizontal shaft so that slight pressure on the tips of any of the finger causes them to retract by tilting backwards. A vertical apron below this shaft serves as a rest when the mast is tilted back. The whole assembly is mounted on a side shift mechanism. *A. O. Smith Corp.*

For more data insert No. 44 on postcard, p. 37.

Quench-Conveyer

For continuous heat treating of metal parts and forgings.

A quenching-and-conveying unit is designed for heat-treating individual pieces. The oil in the tank

is recirculated and cooled. The belt, of metal, allows the quenched parts to drain as they move up the inclined conveyer, that is driven by a self-contained power unit. Cleats or flights can be attached. Overall di-



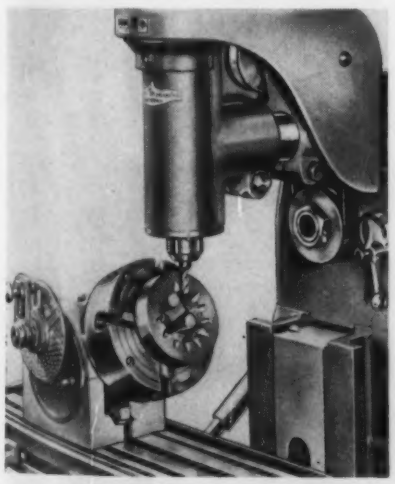
mensions are 8 ft long x 2 ft wide x 4 ft high. Larger quench-conveyers can be built for larger, heavier parts. *Klaas Machine & Mfg. Co.*

For more data insert No. 45 on postcard, p. 37.

Vertical Mill Attachment

Precision and ruggedness are the keynote of the unit's construction.

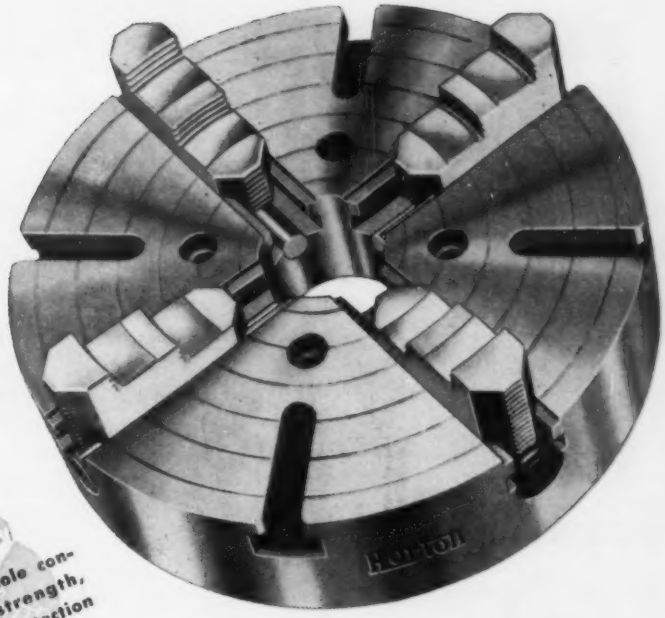
Retaining all the high performance features of the original design, a new improved streamlined, vertical mill attachment is versatile according to the manufacturer—taking the place and doing the work of



many specialized machines. Safety for the operator is provided by a protecting hood over power transmission parts. *Marvin Machine Products, Inc.*

For more data insert No. 46 on postcard, p. 37.

Resume Your Reading on Page 41



Exclusive pilot hole construction for strength, accuracy and protection from wear.

Chrome nickel steel scroll machined after hardening to Rockwell "C" 40-45.

Exclusive replaceable pinion bushings to reduce scroll and pinion wear.

Flame-hardened jaw ways to prolong accuracy and gripping power.

One-piece body of forged steel for extra strength and longer chuck life.

Get these EXTRAS at no extra cost

Costlier construction features have given Horton Chucks their reputation for being *"built up to a standard—not down to a price"*. Yet *they cost no more.* Yes, it's true. The extras that Horton builds into every chuck mean greater accuracy, longer life and far better chuck value. Compare a Horton. Try a Horton—and you'll agree.

Write for literature and prices.

HORTON Since 1851 CHUCKS

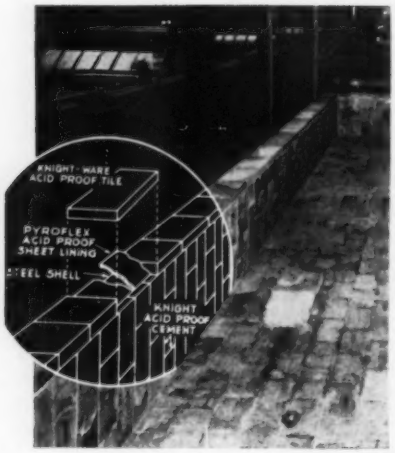
*at slight extra cost

INDEPENDENT CHUCKS
SCROLL UNIVERSAL CHUCKS
SCROLL COMBINATION CHUCKS
TWO JAW LATHE CHUCKS
FACE PLATE AND BORING MILL JAWS

THE E. HORTON & SON CO.

Windsor Locks, Conn.

THE OLDEST CHUCK MANUFACTURER IN THE WORLD



This Tank Will Live to a Ripe Old Age

It's PYROFLEX-Constructed

Pickling tanks lead a tough life. The Pyroflex-Constructed Pickling Tank above is in use in a continuous strip steel line in a large Ohio steel mill. It is subject to constant attack by acids, steam and other corrosive agents. To make this tank completely corrosion proof, Knight engineers installed Pyroflex sheet lining heat bonded to the steel shell, then covered with acid-proof brick set in Knight acid-proof cement. The result is a tank completely resistant to this highly corrosive type of service.

However, Pyroflex Construction is not always composed of these same materials. In designing various corrosion proof constructions such as tanks, chlorinating towers, floors, sewers, fume ducts, etc. Knight engineers may incorporate ceramics, carbon, glass, plastics or any other materials best suited to the individual situation. Consequently Pyroflex-Constructed units live to a ripe old age with less "down time" and lower maintenance costs.

When making inquiry regarding Pyroflex Constructions, please specify type of equipment in which interested, service conditions involved, etc.

MAURICE A. KNIGHT

301 Kelly Ave., Akron 9, Ohio

Acid and Alkali-proof Chemical Equipment

publications

Continued from Page 36

Major trends have been brought up to date. *United States Steel Supply Co.*

For free copy insert No. 9 on postcard, p. 37.

Rubber Testers

A summary of the activities of the V. L. Smithers Laboratories in testing rubber, rubber-like materials and compounding ingredients is presented in a new 16-p. brochure covering the scope of the laboratory. The booklet tells how this organization develops new compounds, tests suitability of raw materials for rubber compounds, performs physical and chemical testing to any specification, and can do limited manufacturing of small parts during development. *V. L. Smithers Laboratories.*

For free copy insert No. 10 on postcard, p. 37.

Cuts Waste Motion

How the Lull Hydraulic Traveloader eliminates a lot of the waste motions of backing, turning, stopping and starting in materials handling is described in a new 12-p. bulletin. The unit is shown to combine the features of a fork-lift truck, transporter, yard crane, spooled cable reeler and strip steel carrier into one unit. A few examples of the many jobs performed are shown. *Lull Mfg. Co.*

For free copy insert No. 11 on postcard, p. 37.

Versatile Lift Truck

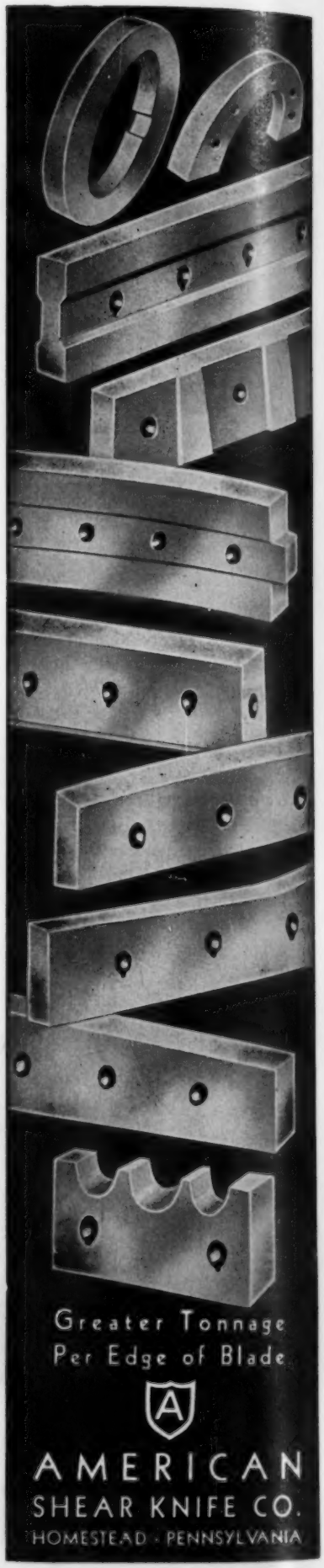
Specifications for the new Model 230 Mercury Jeep, a tilting-tiering lift truck with 2000 lb capacity, are presented in a new 4-p. folder. The truck features exceptional maneuverability and unusual stability, as shown in the bulletin; dimensions and other details are also listed. *Mercury Mfg. Co.*

For free copy insert No. 12 on postcard, p. 37.

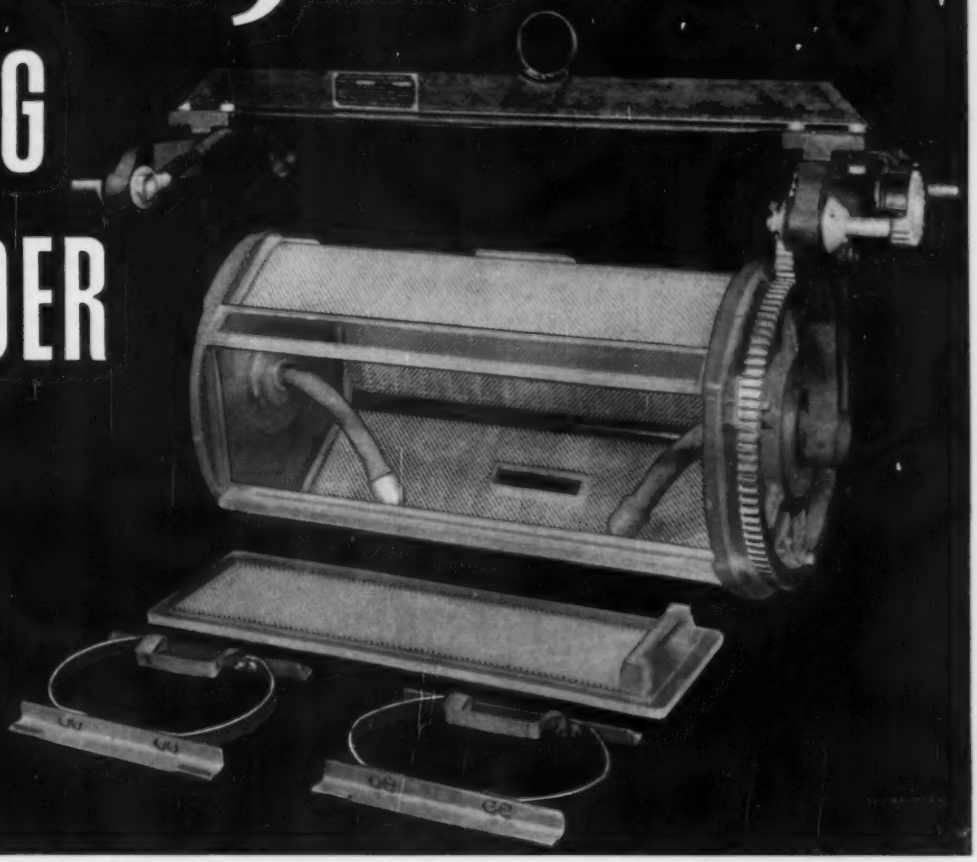
Welding Alloys, Fluxes

A new 32-p. pocket-size booklet serves as a buyers guide to the complete line of All-State alloys and fluxes for welding, brazing, soldering, cutting and tinning. It tells everything a buyer needs to know to select the particular alloys and fluxes that best meet his needs. All

(Turn to Page 416)



Udylite PLATING CYLINDER



6 WAYS BETTER

1. GREATER ABRASION RESISTANCE
2. 30% MORE PERFORATED AREA
3. "DEEP-DIP" DESIGN
4. STRONGER CONSTRUCTION
5. LOWER INITIAL COST
6. OPERATES THROUGH ENTIRE CYCLE (ACID OR ALKALINE)

Consider the advantages of the Udylite 'Lucite' Plating Cylinder. This cylinder is made of heat resistant 'Lucite'—which offers greater abrasion resistance. And the shell is *mortised* and *cemented* into the cylinder heads—with door openings machined to a very close tolerance, providing perfect fit. Door clamps are designed to give maximum support to the door panel yet open easily and freely. Oversized superstructure with "Deep-Dip" design allows the cylinder to hang deep in the solution.

This 'Lucite' cylinder can be operated through the complete cycle—either acid or alkaline. And most important—the Udylite 'Lucite' Plating Cylinder is offered in 4 sizes with perforations 1/16" Diameter and Larger.

Call in your Udylite Technical Man today for full information concerning the Udylite 'Lucite' Plating Cylinder or write direct to *The Udylite Corporation, Detroit 11, Michigan.*

PIONEER OF A BETTER WAY IN PLATING

THE Udylite CORPORATION
DETROIT 11, MICHIGAN



sleep's unaffected...

his factory's protected

Worry! Fret! Loss of sleep thinking about fire cutting into production time... destroying valuable records ... costing lives of employees... all are anxieties of the past when your factory's protected with modern, approved C-O-TWO Fire Protection Equipment.

For example, the new C-O-TWO Low Pressure Carbon Dioxide Type Fire Extinguishing Systems keynote flexibility to meet your particular fire protection needs. Flammable liquids, electrical equipment, storage and manufacturing processes can all be made firesafe from a single low pressure carbon dioxide storage tank . . . capacities range from one to fifty tons of fire killing carbon dioxide. If fire should strike the fast-acting, non-damaging, nonconducting carbon dioxide extinguishes the blaze in seconds . . . no water damage, no lingering odors.

Further, when a C-O-TWO Smoke or Heat Fire Detecting System is used in combination with a C-O-TWO Low Pressure Carbon Dioxide Type Fire Extinguishing System, the first trace of smoke or spark of fire in a protected area immediately sounds an alarm . . . then the fire quenching carbon dioxide is readily released into the threatened area.

So, whatever your fire protection problem, let an expert C-O-TWO Fire Protection Engineer help you in planning complete and up-to-date fire protection facilities now. Write us today... tell us about your particular fire hazards, our experience is at your disposal . . . no obligation of course.

C-O-TWO

C-O-TWO FIRE EQUIPMENT COMPANY

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Sales and Service in the Principal Cities of United States and Canada

Affiliated with Pyrene Manufacturing Company

MANUFACTURERS OF APPROVED FIRE PROTECTION EQUIPMENT

Squeez-Grip Carbon Dioxide Type Fire Extinguishers • Dry Chemical Type Fire Extinguishers

Built-In High Pressure and Low Pressure Carbon Dioxide Type Fire Extinguishing Systems

Built-In Smoke and Heat Fire Detecting Systems

publications

Continued

current products are covered, including several new ones recently developed, such as a new aluminum solder rod for soldering iron application, a premium silver brazing rod and a silver brazing rod made especially for carbide tool tipping. *All-State Welding Alloys Co., Inc.*

For free copy insert No. 13 on postcard, p. 37.

Saw Blades Described

M&M Triple-Chip solid and segmental circular saw blades are described in a new 8-p. bulletin. Two tables give complete data and specifications for all standard size blades. Also described are two models of M&M automatic saw blade sharpeners, which impart the exclusive Triple-Chip tooth form. The details and advantages of this method of sawing are fully explained. *Motch & Merryweather Machinery Co.*

For free copy insert No. 14 on postcard, p. 37.

Crane Uses Shown

A new 20-p. bulletin covers the application of Lorain cranes to industrial materials handling. The booklet contains over 50 illustrations showing these versatile machines on the job in many types of industries, handling many types of material such as steel sheet, sand, scrap, pulpwood, sugar cane, paper, tires and airplanes. Rubber-tire Moto-Cranes and self-propelled Lorains and crawler mounted models are shown at work. Every page is filled with ideas on outdoor materials handling. *Thew Shovel Co.*

For free copy insert No. 15 on postcard, p. 37.

Induction Motor Bulletin

Features of A-C large two-pole squirrel cage induction motors are given in a new 6-p. bulletin. A cross-section view of a typical normal torque, low starting current motor shows the construction of stator winding, bearings, ventilation, squirrel cage winding, rotor, stator, and bearing brackets. Features described in the bulletin are available in A-C standard 40 C rise continuous rated, two-pole, 60-cycle, 3,600-rpm, bracket-bearing, squirrel cage

motors for direct-connected drives in all ratings 900 hp and larger, built for boiler feed pumps, oil pipeline pumps, centrifugal blowers, descaling pumps, and other high speed drives. *Allis-Chalmers Mfg. Co.*

For free copy insert No. 16 on postcard, p. 37.

Powered Hand Trucks

The new powered hand trucks recently announced by Clark are described in detail in a new 12-p. booklet. Separate sections of the book are devoted to each of the two power types: the Electro-Lift, battery-powered and motor-driven; and the Hydro-Lift, gas-powered and driven by hydraulic pump and hydraulic motor. The center-spread provides data concerning the mounting of the drive motors—both electric and hydraulic—inside the drive wheel; turning radius; the frame and other major units common to both power types and other important features. *Industrial Truck Div., Clark Equipment Co.*

For free copy insert No. 17 on postcard, p. 37.

Wire Rope Clamp

The streamlined neatness and holding power of the modern Safe-Line clamp for wire rope are pointed up by numerous illustrations of applications in a wide variety of industries, shown in a new 42-p. booklet. A questions-and-answers section provides general information about the clamps, showing how the inside of each half is made to fit the rope. *National Safe-Line Clamp Co.*

For free copy insert No. 18 on postcard, p. 37.

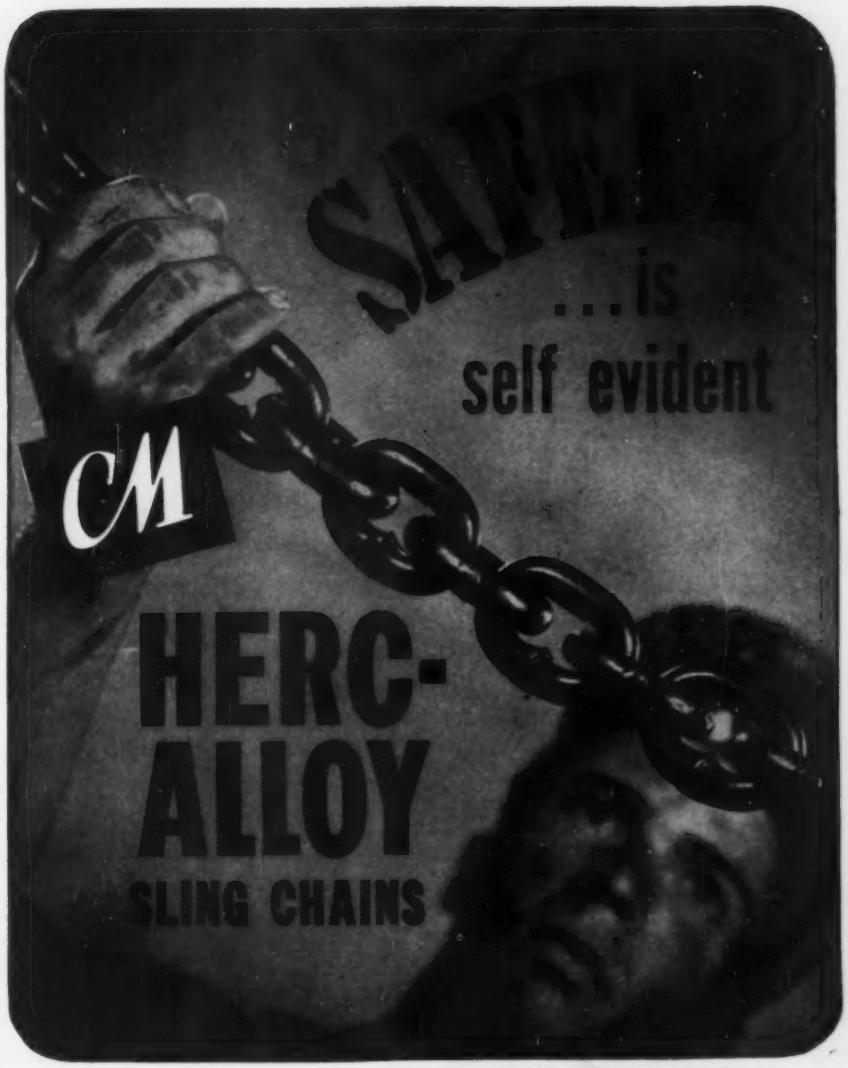
Heaters and Coolers

Brief descriptions and specifications of the complete line of Hunter gasoline-burning cab and cargo heaters and dry-ice cargo refrigeration systems are given in a new 4-p. folder. Illustrated with photographs and drawings of various models, the catalog also contains drawings of recommended installations. *Hunter Mfg. Co.*

For free copy insert No. 19 on postcard, p. 37.

Belting Info Bulletin

All types of conveyer and elevator belting are covered in a new 16-p. information bulletin. It contains a discussion of each of the various types of belting and suggestions for their application; and is complete with all the necessary tables, charts,



HERC-ALLOY FEATURES

- America's *first* alloy steel sling chain... first to bear a serial number.
- Every CM HERC-ALLOY Sling Chain is alloy steel throughout... links, rings, hooks. There is only one grade... *the best.*
- Every chain is individually tested and accompanied by a certificate of registration.
- Links are side welded for maximum strength by patented INSWELL electric method.
- HERC-ALLOY Chains should *never* be annealed.
- HERC-ALLOY Chains are lighter... stronger... easier to handle... outlast ordinary chains 4 to 5 times... cost less on the job.

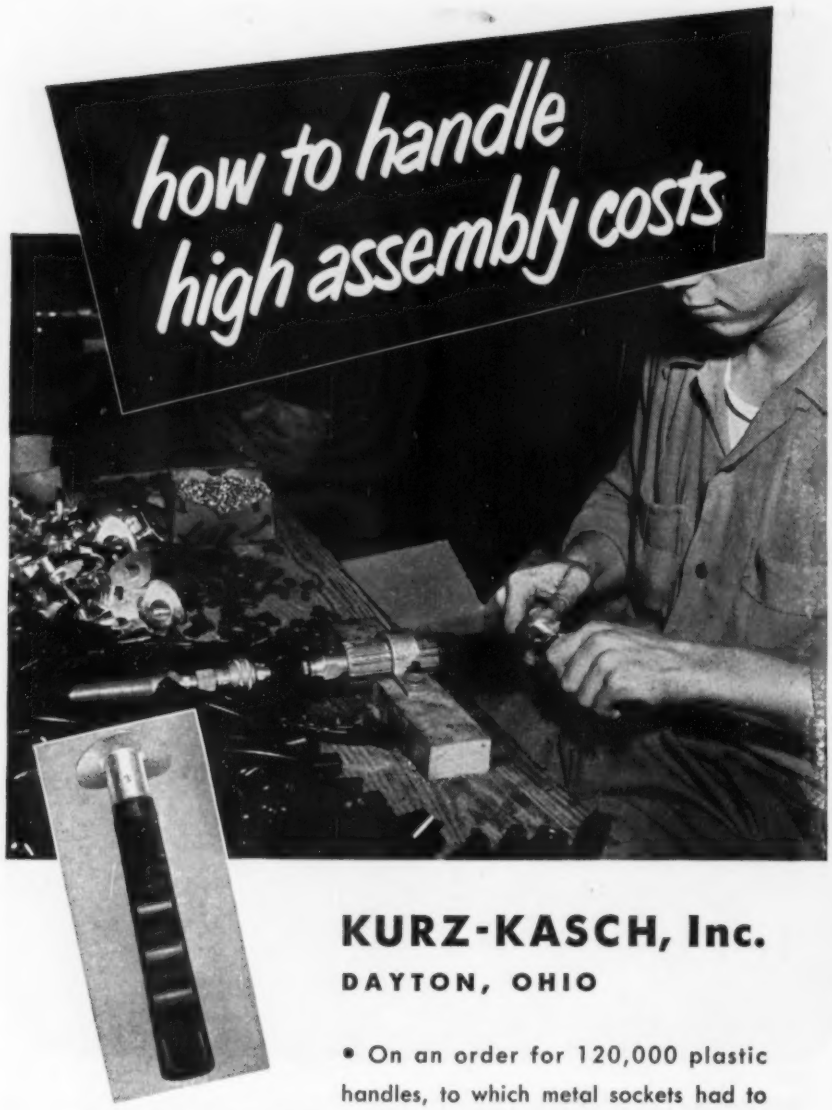
HERC-ALLOY... the chain you can *SEE* is safe

● A simple visual inspection* is all that is needed to determine the continued serviceability of a HERC-ALLOY Chain. That's why more and more of the important companies are standardizing on HERC-ALLOY... because HERC-ALLOY Chains are immune to unseen dangerous crystallization... because you can see when a HERC-ALLOY Chain needs repairs or replacing.



*Write for your copy of this new, informative booklet. No charge.

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CHAIN CORPORATION
Affiliated with Chisholm-Moore Hoist Corporation
GENERAL OFFICES AND FACTORIES: TONAWANDA, N. Y.
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KURZ-KASCH, Inc.
DAYTON, OHIO

• On an order for 120,000 plastic handles, to which metal sockets had to be attached, Kurz-Kasch, Inc., pioneer planners and moulders in plastics, found that manual assembly methods averaged only 125-150 units per hour per man . . . ran assembly costs dangerously high.

Converting to Buckeye air-powered screwdrivers, Kurz-Kasch stepped up productive output to 225-250 units per hour—a 66⅔ % increase that kept assembly costs in line, assured a profitable production operation.

In any business—including yours—there's a real need for efficient, modern Buckeye Air Tools. Screwdrivers, drills and nut runners . . . grinders, buffers, sanders . . . wrenches, shears and nibblers . . . there's a Buckeye Tool to do your work—faster, better, more economically. We'll prove that—in your plant, on your job—without obligation. May we call on you?

Buckeye Tools
CORPORATION
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Portable Air and Electric Tools for Industry

publications

Continued

and formulas for the selection of the right type of belt for the application. This new bulletin will be of particular interest to engineers and operating personnel interested in the selection of conveyer belts. *Thermoid Co.*

For free copy insert No. 20 on postcard, p. 37.

Brakes, Brake Motors

Features of C-W brakes and brake motors, incorporating brake linings of bonded metal, are described in a new 4-p. bulletin. The folder contains a checklist of advantages and a cutaway photo showing construction features of the compact unit. Dimensions of the various brake sizes available are provided; information on mounting, mechanical and electrical characteristics and other engineering data are presented. *Crocker-Wheeler Div. Elliott Co.*

For free copy insert No. 21 on postcard, p. 37.

For Induction Heating

Principles of Tocco induction heating are shown in a new 60-p. catalog describing equipment and advantages. Typical results of induction hardening and heat treating are presented, along with results of induction heating for forming, forging, annealing, brazing and soldering. The section on induction heating equipment lists numerous types and sizes of machines to meet specific requirements. Construction features are described, specifications are listed, and various typical installations are shown. *Tocco Div., Ohio Crankshaft Co.*

For free copy insert No. 22 on postcard, p. 37.

Wire Rope

A new 8-p. booklet on wire rope for excavating equipment incorporates a complete list of usage recommendations and the wire rope code. Drawings illustrate proper rigging on shovels, cranes, dragline excavators, trench hoes and skimmers. Hoist rope strand types are also detailed, showing both new and former constructions. *John A. Roebling's Sons Co.*

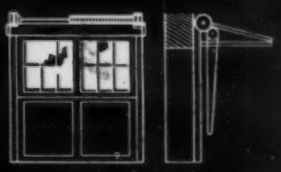
For free copy insert No. 23 on postcard, p. 37.

Resume Your Reading on Page 37

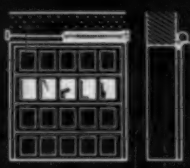


KINNEAR STEEL ROLLING DOORS

Rolling Fire and Service Doors



Bifolding Doors



Sectional RoL-TOP Doors

GREATER EFFICIENCY FOR EVERY TYPE OF DOOR NEED

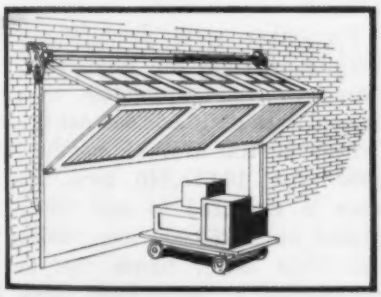
KINNEAR ROLLING DOORS — The interlocking steel slat door was *originated* by Kinnear. With smooth, easy, coiling upward action, this famous door glides out of the way overhead, safe from damage. Doorways remain clear *from jamb to jamb and floor to lintel* — until the doors are closed. Wall and floor areas around the opening are always fully usable.

The tough, flexible, all-steel Kinnear curtain assures longer service life, lower maintenance costs, higher resistance to weather, wear, fire and intrusion.

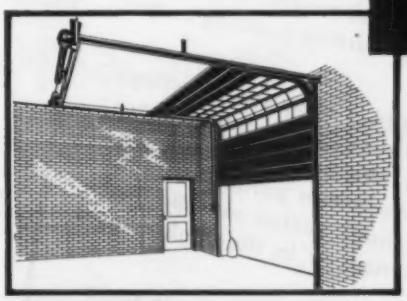
For maximum ease, speed and convenience, Kinnear Rolling Doors can be equipped with Kinnear Motor Operators, with controls at any number of remote points. Hand-lift, chain or crank operation also available.

Kinnear Doors are built any size for old or new buildings.

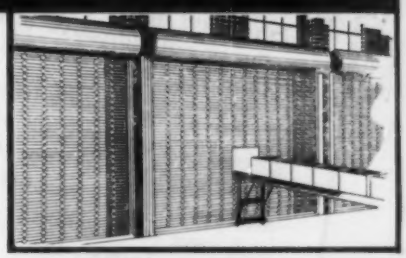
KINNEAR ROLLING FIRE DOORS AND SHUTTERS (Labeled by Underwriters' Laboratories, Inc.) Equipped for positive, automatic closure in case of fire.



KINNEAR BIFOLDING DOORS —
Sturdy two-section doors that "jackknife" to a horizontal, overhead position. Sizes for any opening, with panels for glass to meet any requirement. Also heavy-duty Bifolding Doors with lower section that "telescopes" with top section, both sections then rising overhead.



KINNEAR RoL-TOP DOORS —
Sectional-type upward-acting doors roll smoothly and easily to a horizontal position overhead. Any number of sections can be paneled for glass. Motor or manual operation. Built in a full range of sizes for industrial, commercial, and residential needs.



KINNEAR ROLLING GRILLES —
Sturdy, upward-acting curtains of interlocking steel bars and links that protect property without blocking light, vision, ventilation or sound. When not in use, they coil compactly above the opening. Built for openings of any size; easily installed in old or new construction.

ALSO AVAILABLE IN WOOD — Kinnear RoL-TOP and Bifolding Doors are also built of wood, for residential and industrial uses.

THE KINNEAR MANUFACTURING CO.

Offices and Agents in All Principal Cities

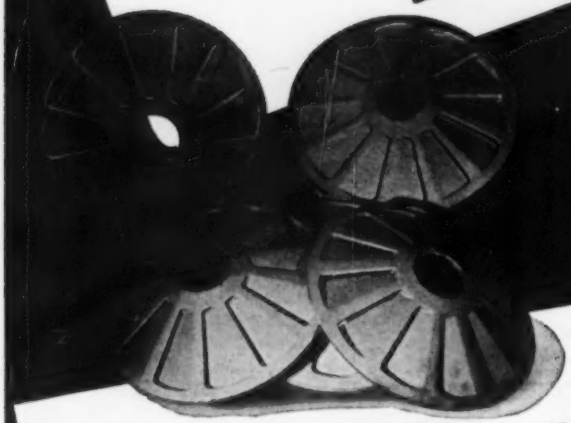
Factories: 1760-80 Fields Ave., Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, California

Saving Ways in Doorways

KINNEAR ROLLING DOORS

DURALOY

Cast with Very High Nickel!



Here are some Duraloy Castings with a 65% Nickel—15% Cr content, alloyed to meet exceptionally high temperatures and severe corrosion conditions in connection with Diffuser operations. This is more than a high nickel alloy; it's very high...somewhat out of the ordinary but indicative of what Duraloy is doing in the field of high alloy castings.

We have been specializing in high alloy static castings since 1922 and in high alloy centrifugal castings since 1931; both pioneering years. We have a big foundry, modern in every respect...modern in production, control, and test facilities. We have skilled metallurgists and foundrymen long experienced in the high alloy casting field.

In short, we are staffed and have every facility to serve you on high alloy castings up to 7½ tons, individual casting weight.

THE DURALOY COMPANY

Office and Plant: Scottdale, Pa. • Eastern Office: 12 East 41st Street, New York 17, N.Y.

Atlanta: J. M. TULL Metal & Supply Co. | Detroit: F. B. CORNELL & ASSOCIATES | Chicago: F. O. NELSON, 1743 McCormick Building | San Francisco: JOHN D. FENSTERMACHER

METAL GOODS CORP. Dallas • Denver • Houston • Kansas City • New Orleans • St. Louis • Tulsa

Attlee Hard of Hearing To Hands-Off Steel Industry Pleas

Sir Ellis Hunter says Cabinet had scrapped agreement reached in '47.

London — Renewed appeals to keep hands off the British steel industry might just as well have been directed to a deaf man with his hearing apparatus turned off.

Winston Churchill, in the House of Commons recently, appealed to Prime Minister Attlee to reconsider his decision to force steel nationalization on the country at a time of international turmoil. Mr. Attlee's silence did not mean consent.

Sir Ellis Hunter, president of the British Iron and Steel Federation, rallied after Mr. Churchill. He called attention to the dangers of altering the industry's structure in times like these.

Does He Mean Attlee?

"It would be a madman who would interfere at this stage with an industry that has served the country so well," said Sir Hunter sternly at a meeting of Dorman Long & Co. stockholders. He claimed that the industry and government had reached an "understanding" in 1947 to avoid nationalization. This agreement was later tossed aside by the Cabinet without explanation.

November steel production in Britain reached the highest rate ever achieved—equivalent to an annual rate of 19,568,640 net tons. Output in the first 11 months of 1950 was 16,919,840 tons. The year is expected to end with a record of 18,256,000 tons chalked up. This latter figure tops the government's "ambitious" target of 17,920,000 tons.

Domestic orders for steel fell in the first part of '50 but took a sharp upswing in recent months. Defense orders in England have still to play an important role in production. Action is being taken to limit steel exports. This with record steel production should help fill domestic demand.

To continue record steel output, high level users of steel are being requested to return their scrap as rapidly as possible.

K & R PRODUCTS

★ Straightening Rolls
★ Bending Rolls
★ Cold Roll Forming Machines
★ Gang Slitters
★ Flying Shears
★ Crimping Machines
★ Hydraulic Tube Benders
★ Hydraulic Bulldozers
★ Hydraulic Presses
★ Edging Machines
★ Special Metalworking Equipment

KANE & ROACH
INCORPORATED
Syracuse, New York
Established 1887



This Record Safeguards Your Stainless and High Tensile Welding Jobs

The Arcos label is your assurance of uniformity from pound to pound and shipment to shipment.

The alloy heat number and process number are stamped on every label. Together with the printed data on the label, this gives the information needed to match exactly any previous order at any time. Careful manufacturing controls and records of Arcos stainless and high tensile steel electrodes are the reason for the uniformity of Arcos weld metal in specified chemical, physical and metallurgical properties.

Get the Arcos "Reference Chart on Alloy Welding" from your distributor or write direct.

ARCOS CORPORATION

1500 South Fiftieth St., Philadelphia 43, Penna.

WELD WITH ARCOS



Specialists in Stainless, Low Alloy and Non-Ferrous Electrodes.

Materials Handling Society Plans Chicago Meeting April 30

Chicago—Sixteen chapters of the American Materials Handling Society will participate in the Materials Handling Conference to be held concurrently with the National Materials Handling Exposition at the International Amphitheatre, April 30 to May 4.

A. K. Strong Chairman

General chairman of the conference will be A. K. Strong, marine division, Columbian Rope Co., New York. Serving with him on the executive committee will be Donald W. Pennock, factory engineer, Carrier Corp., Syracuse, N. Y., and Irving M. Footlik, materials handling consultant, Chicago.

Participating chapters include Boston, Buffalo, Chicago, Cleveland, Detroit, Houston, Indianapolis, Los Angeles, Louisville, New York, North Texas, Pittsburgh, Syracuse, Toledo, Toronto, and Western Michigan.

Mechanization of Mulga Mine

Birmingham — The Mulga coal mine of the Woodward Iron Co. will be completely mechanized and production is expected to be increased about 25 pct. Production in 1949 was 462,392 tons and this year it is producing at a rate of more than 600,000 tons, the company announced.

Cost of mechanization is expected to be $1 million. A continuous belt to the mine mouth, "moles," mechanical coal diggers operated on the continuous belt principle, larger coal cars and automatic safety devices will be added.

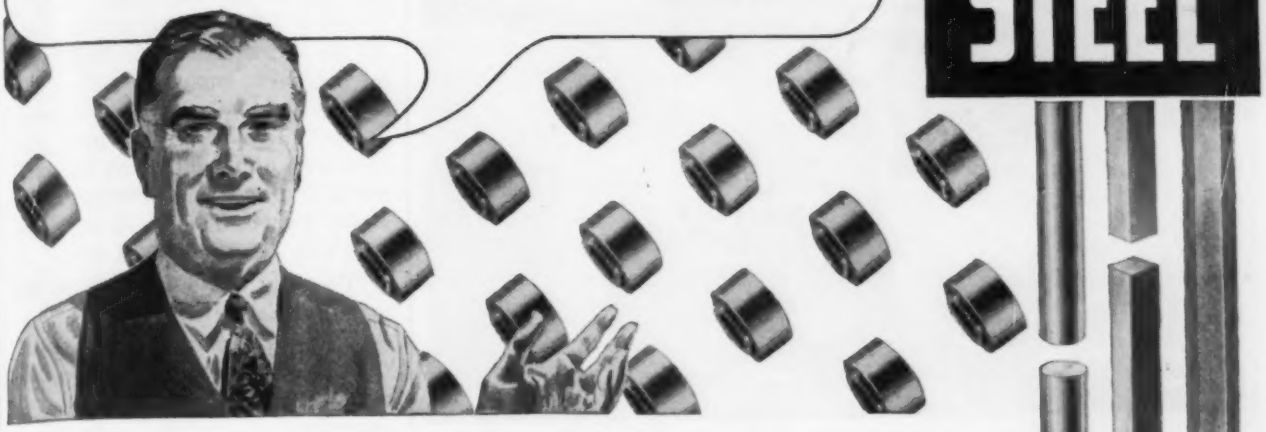
Mechanization of the mine will not substantially decrease the underground force, but will result in larger output per miner.

Shows 43 Pct Profit Increase

Toledo — Bingham-Herbrand Corp., manufacturers of drop-forgings and metal stampings, reports its largest sales in history and a 43 pct increase in earnings for the fiscal year ending Sept. 30.

WE INCREASED PRODUCTION 71% WITH J&L "E" STEEL

J&L STEEL



(a story* about how to win customers and influence prospects)

"Got a minute? Well, let me tell you about what happened at our machine shop a couple of months ago when we first tried that new J&L "E" Steel. You wouldn't believe it was possible! (Confidentially, neither did we until we proved it to ourselves.) Here's what happened.



"We got an order to produce a big lot of plunger stops for solenoid starter switches. They're tricky to run, and you've got to be pretty careful every second. We'd read about "E" Steel in some of J&L's ads, and decided we might try some on this job.

"So we ordered some 17/32" E-33 "E" Steel stock, set up our B&S #2 and B&S #0 Automatics and began to turn out parts. We had used B-1113 for this job before and had been getting 350 pieces per hour. But we soon realized we could machine much faster with "E" Steel, and **we kept increasing speed until we were getting an average of 600 parts per hour. That's a 71% production increase!**



"Next thing we discovered was that our tools were lasting twice as long and the chips were coming off better with "E" Steel than they did with B-1113. We also found that the finish on the parts had improved from 20% to 25%.

"That's why we've been using "E" Steel. We turn out work much faster and can take on more jobs. Our men like the way "E" Steel machines and our customers get better parts and better service. Everybody benefits!"

Get your copy of the booklet titled "A Progress Report on 'E' Steel." It outlines a series of 11 case histories from machine shops that have used "E" Steel with excellent results. Write for your copy.



*Based on an actual case history.

"E" Steel (U.S. Pat. No. 2,484,231) is easily identified by the distinctive blue color on the end of every bar.

Jones & Laughlin Steel Corporation
403 Jones & Laughlin Building
Pittsburgh 30, Penna.

Please send me a free copy of "A Progress Report on 'E' Steel."

Name_____

Title_____

Company_____

Address_____

_____

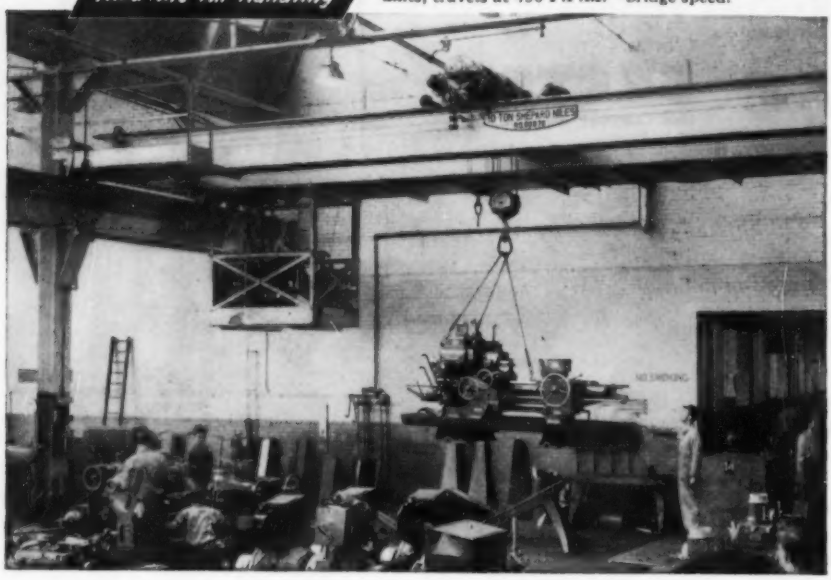
JONES & LAUGHLIN STEEL CORPORATION

From its own raw materials, J&L manufactures a full line of carbon steel products, as well as certain products in OTISCOLOY *and* JALLOY (*hi-tensile steels*).

PRINCIPAL PRODUCTS: HOT ROLLED AND COLD FINISHED BARS AND SHAPES • STRUCTURAL SHAPES • HOT AND COLD ROLLED STRIP AND SHEETS • TUBULAR, WIRE AND TIN MILL PRODUCTS • "PRECISIONBILT" WIRE ROPE • COAL CHEMICALS

For Lowest Cost Per Load-Use Dependable Thru-the-Air Handling

For this installation, operating conditions called for rapid travel over a large area. Controlled by operator in the cab, this Shepard Niles 10-ton, welded-beam crane, with main and auxiliary hoist units, travels at 450 F.P.M.—bridge speed.



we start by asking "what"

WHAT are *your* problems? Under WHAT conditions will *your* crane be operated—intermittently, or under fairly constant conditions? WHAT are the operating speeds necessary to meet *your* productive cycle?

Your answer to these and similar questions will enable us to engineer your installation so that it will give you the best, and longest service—at the lowest cost per load over the years.

Be sure you get the crane best qualified to do *your* job. It's wise—and costs you nothing—to get the facts first, rather than to make expensive changes later.

May we place our experience of a great many years of successfully designing all types of crane installations at your disposal?

Shepard Niles

CRANE & HOIST CORPORATION

Makes and sells all three lifting tools for airborne shop loads



356 SCHUYLER AVENUE • MONTOUR FALLS, N. Y.

Southeast Iron and Steel Industry to Use More Rail Cars

Birmingham—The iron and steel industry in the Southeast expects to use 41,343 railroad cars to handle its shipments in the first quarter of 1951, reports R. M. Reid, Tennessee Coal, Iron & Railroad Company traffic manager and chairman of the advisory committee of the Southeast Shippers Advisory Board. This is 12 pct more than the same period in 1950.

"Business conditions within the industry, both currently and prospectively, are good," Mr. Reid said. "Furnaces producing pig iron and steel are expected to operate at capacity.

"Expansion and modernization programs now under way in the industry contemplate considerable increase in production capacity.

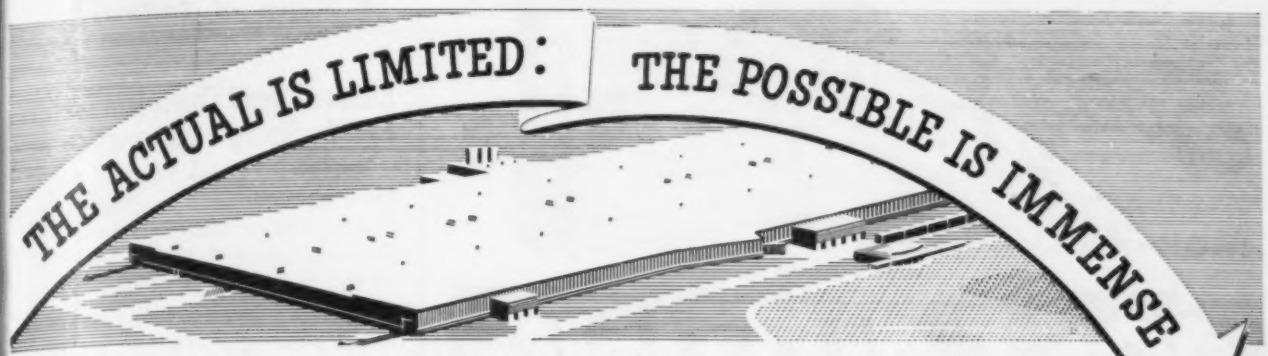
"The railroad car supply during the current quarter has been extremely tight, with shortages reported by many members, particularly so in the case of boxcars and pipe and pig iron gondolas. But with car manufacturing plants working at top speed, relief is in sight."

Cladmetals Field to Expand

Carnegie, Pa.—Wide acceptance among fabricators and the need to conserve vital materials are forcing a period of expansion upon the cladmetals industry, according to Joseph Kinney, Jr., president, American Cladmetals Co. Cladmetals, two metals bonded together and providing the best characteristics of each, are being more widely used in guided missles, jet power plants, communications equipment and products of the atomic energy laboratories.

Some ECA Steel Changes Made

Washington—Langdon S. Simons, of the Economic Cooperation Administration, has gone to Paris to head European headquarters' industry division iron and steel branch. Charles G. McNaron was elevated to the top post in the Washington branch.



NEW LINCOLN PLANT CREATED BY INCENTIVE-INSPIRED CO-ACTION IN DEVELOPING POSSIBILITIES IN PRODUCT

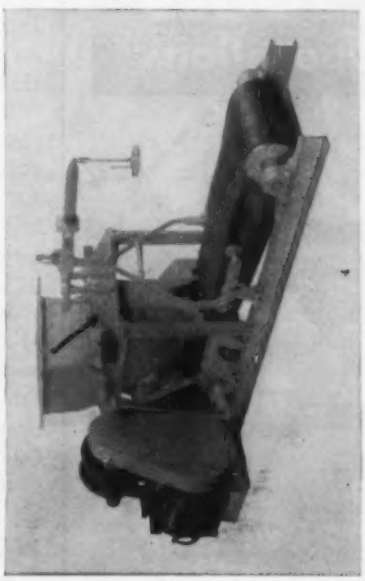
© LE Co. 1951

Manufacturer cuts machining time by converting to welded design

A SAVING of 0.28 man-hours per piece is now being realized in the production of the scale beam shown. By converting the design of this part to welded steel, it has become possible to pre-machine components on smaller equipment as well as eliminate some machining operations entirely.

In place of the original construction shown, the machinery member is now produced simply from a plain angle and two steel straps. The resulting greater strength of the adopted steel design is providing both improved product performance and better sales appeal. The cost of this one part alone has been cut from $2.57 to 71¢ . . . a saving of 72%.

How To Steel Design With Welding. Complete, up-to-date design data now available in new, 9th Edition, Procedure Handbook of Arc Welding Design and Practice. Price only $2.00, postpaid in U.S.A.; $2.50 elsewhere.



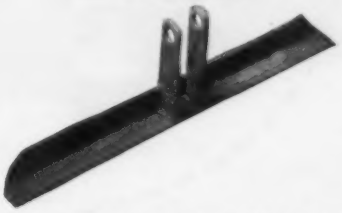
Continuous Weighing Machine *of the Schaffer Poidometer Company, Pittsburgh, Pennsylvania. Arrow points to scale beam originally used and now replaced with welded design.*

the ACTUAL



Original Construction: *Machinery beam. Cost $2.57 . . . weight 10 pounds.*

increasing the YIELD



Present Design: *Simplified with welded steel . . . Costs only 71¢ . . . weighs only 7 pounds.*

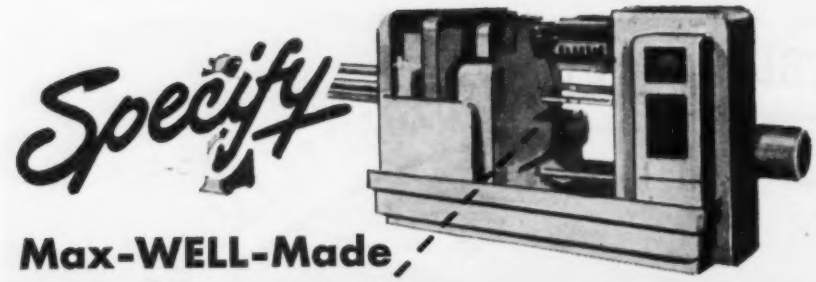
the IMMENSITY of the POSSIBLE turns out to be a COST REDUCTION OF 72%

SEE HOW WELDING SIMPLIFIES PRODUCTION

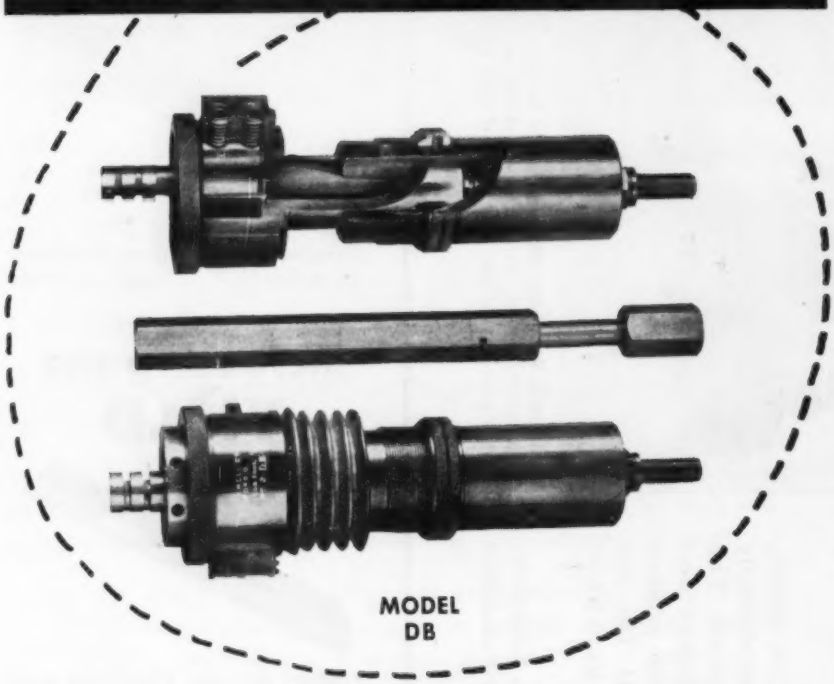
Machine Design Sheets free on request. Designers and engineers write on your letterhead to Dept. 51

THE LINCOLN ELECTRIC COMPANY

CLEVELAND 1, OHIO



COST CUTTING
RECESS-O-MATIC TOOLS
Eliminate Secondary Operations

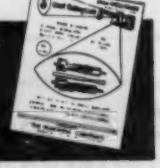


● Universally adaptable RECESS-O-MATIC tools have been designed especially to perform recessing, back-chamfering, back counterboring and thread and grind reliefs, as well as other internal forming operations.

Because they can be used on your automatics, RECESS-O-MATIC tools completely eliminate secondary operations to perform these critical jobs. Large range and long stroke are features, and tools are easily and rapidly set-up or adjusted for diameters and locations to within 0.001-inch accuracy.

RECESS-O-MATIC tools can be piloted on the work-piece or operated by draw-bar. Circular form cutters with high-speed or Carbide tips assure immediate economy and dependable accuracy.

Write for catalog DB today, or send your drawings for recommendations.



THE MAXWELL COMPANY
386 BROADWAY • BEDFORD, OHIO

Railroad Head Champions Fast-Declining Steam Locomotive

Norfolk, Va.—A railroad president championed the fast-fading coal-powered locomotive recently. He was Robert H. Smith, president of the Norfolk and Western Railway, which has coal motive power in all passenger, freight and yard service locomotives.

We do not stick to coal burning locomotives just out of stubbornness, said Mr. Smith. The road has this year put new coal locomotives on the track and expects to continue doing so.

"The really modern coal-burning locomotive gives us the best results," said Mr. Smith. "We have for the last 15 years been improving our locomotives and adding new ones to the fleet."

The railroad president argued that reported savings with diesels are "not at all impressive" when compared to the modern N & W coal burners. Diesel figures look impressive when compared with performance of outmoded steam engines, 25 or more years old.

Accomplishments in Electricity

Schenectady, N. Y.—Engineers and scientists of the electrical industry during 1950 developed more sensitive devices for measurement and control of electricity and electric equipment, increased efficiency and extended applicability of electric devices and components, and improved application of metals and their alloys.

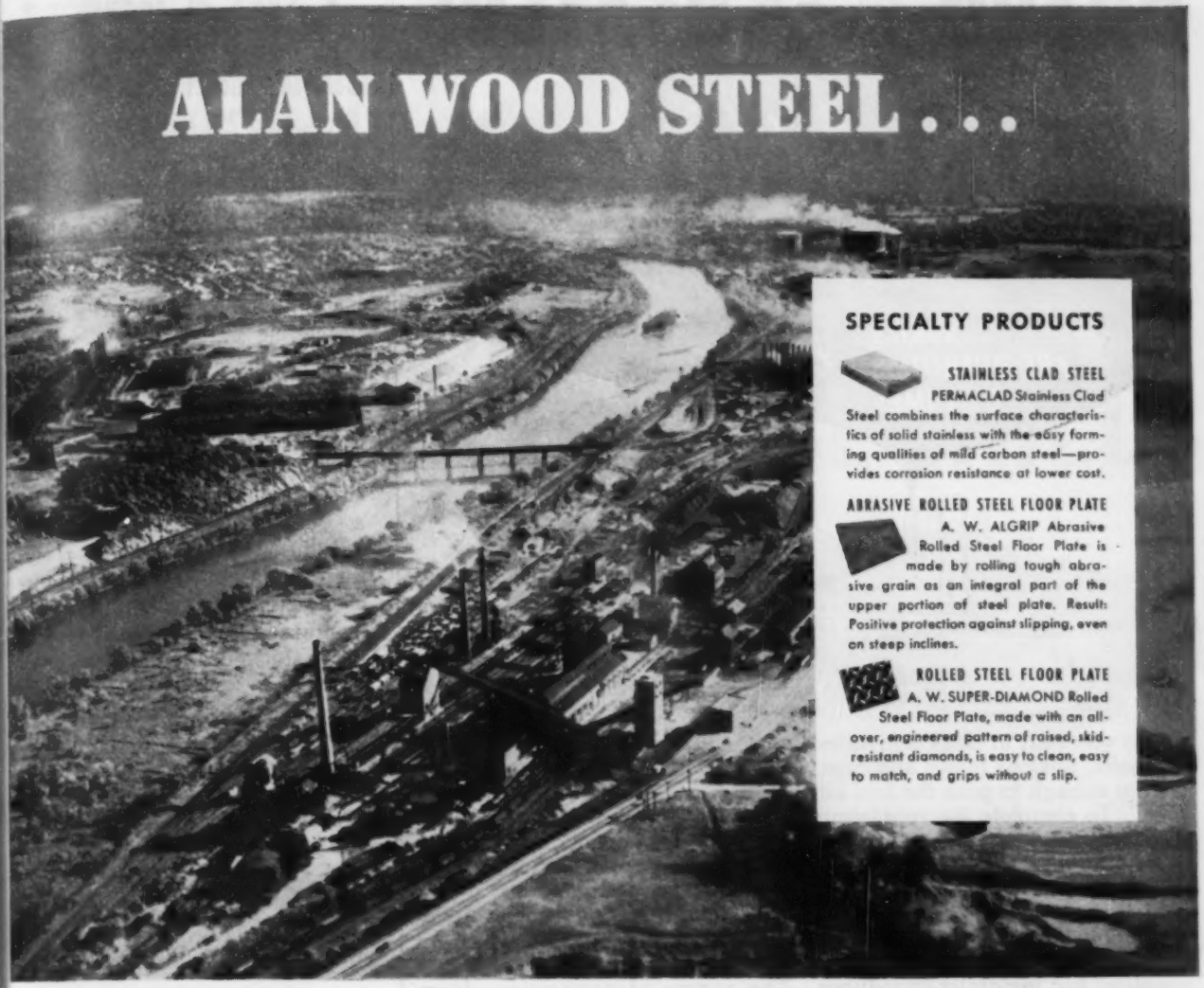
These were among the accomplishments listed by General Electric in its report on Electrical and Allied Developments.

GE announced that atomic energy studies near this city were now concentrating on a submarine intermediate reactor.

Kentucky to Get U-235 Plant

Washington—A new uranium-235 plant will be established at the Kentucky Ordnance Works, 16 miles west of Paducah, Kentucky, if Congress approves a request for funds in the Second Supplemental Appropriation, now under consideration.

ALAN WOOD STEEL . . .



SPECIALTY PRODUCTS

STAINLESS CLAD STEEL
PERMACLAD Stainless Clad Steel combines the surface characteristics of solid stainless with the easy forming qualities of mild carbon steel—provides corrosion resistance at lower cost.

ABRASIVE ROLLED STEEL FLOOR PLATE
A. W. ALGRIP Abrasive Rolled Steel Floor Plate is made by rolling tough abrasive grain as an integral part of the upper portion of steel plate. Result: Positive protection against slipping, even on steep inclines.

ROLLED STEEL FLOOR PLATE
A. W. SUPER-DIAMOND Rolled Steel Floor Plate, made with an all-over, engineered pattern of raised, skid-resistant diamonds, is easy to clean, easy to match, and grips without a slip.

• Because of Defense Orders and other Government programs we cannot supply all of our customers' requirements but we are leaving no stone unturned to increase our production and to shorten delivery time.

125 Years of Iron and Steel Making Experience

ALAN WOOD STEEL COMPANY

Conshohocken, Pa.

IVY ROCK, PA. • SWEDELAND, PA. • DOVER, N. J. • OXFORD, N. J.

PRODUCTS OF ALAN WOOD STEEL COMPANY

IRON PRODUCTS
"Swede" Pig Iron
Foundry, Malleable, Bessemer and Basic

STEEL PRODUCTS
PLATES (SHEARED)
Tank, Ship, Boiler, Flange, Firebox, Locomotive Firebox, Structural, Dredge Pipe and Abrasion-Resistant Qualities
Furnished in carbon, copper, or alloy analyses
A.W. Dynalloy (High Strength Plates)

HOT ROLLED SHEETS
Special qualities in carbon, copper, or alloy analyses
A.W. Dynalloy (High Strength Sheets)

HOT ROLLED STRIP
Coiled and cut lengths
Carbon, copper, or alloy analyses

A.W. ROLLED STEEL FLOOR PLATES
A.W. Algrip Abrasive
A.W. Super-Diamond Pattern

STAINLESS-CLAD STEEL
Permaclad Sheets and Strip
Standard and special qualities available in desired finishes

A.W. CUT NAILS
Reading Brand
Black, Quenched and Tempered, Galvanized

MINE PRODUCTS
Iron Ore Concentrates, Sintered Concentrates, Crushed Stone, Grit, Sand and Engine Sand

COKE
Foundry, Industrial and Domestic

COAL CHEMICALS
Coke Oven Gas • Crude Coal Tar • Ammonium Sulphate • Industrial Benzol, Toluol, Xylol • Motor Benzol • Crude Solvent Naphtha • Crude Naphthalene • Crude Tar Bases • Sodium Phenolate • Crude Light Oil Still Residue

DRAVO *Counterflo* HEATERS

Apply Artificial Respiration.....

WHEN FOUNDRIES ARE OVERCOME BY FUMES

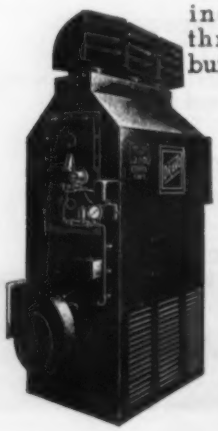


When you start to clear a foundry of smoke, noxious fumes and dust, it's not enough to push the foul air *OUT*. To complete the ventilating job, you must bring fresh air IN!

Natural air infiltration through doors and windows is usually not sufficient to replace exhausted foul air. Mechanical induction of sufficient make-up air takes care of this problem, but generally introduces another. During colder months, this replacement air must be heated, or working areas will be chilled far below comfort levels and production will suffer.

As many foundries have discovered, there's a sound, proven answer ready and waiting: just apply "artificial respiration" with Dravo *Counterflo* Heaters. When cold weather sets in, the heating function goes into instant action, tempering the make-up air to maintain comfortable working conditions throughout the building . . . and, incidentally, overcoming negative pressure and thus increasing the efficiency of all combustion equipment. All through the warm months, the ventilating function provides a continuous supply of unwarmed fresh air to replace foul air.

There are many reasons why foundries make Dravo Heaters first-choice for this responsible job. The range of capacities—from 400,000 to 2,000,000 Btu per hour—provides the proper unit for every load and provides air handling capacity of 11,000 cfm per million Btu output. The heaters can be mounted in any position, and so accommodate themselves to space restrictions. Ready interchange between oil and gas is also a feature. The 80-85% efficiency spells operating economy, and the top-flight engineering, rugged mill-type construction incorporating a stainless steel combustion chamber, minimizes maintenance. Dependable automatic controls make a full-time attendant unnecessary.



Perhaps YOU have a foundry ventilating problem that is affecting worker morale and efficiency—or perhaps you are spending MORE than necessary for heating by old-fashioned methods. For a quick picture of what Dravo Heaters are doing in solving such problems, ask for Bulletin JK-520-1324.

DRAVO CORPORATION

DRAVO BLDG., PITTSBURGH 22, PA.

Manufactured and sold in Canada by Marine Industries, Ltd. Sorel, Quebec

Export Associates: Lynch, Wilde & Co. Washington 9, D. C.

Canada's Nickel Industry Seen Producing 250 Million lb in 1950

International Nickel's Dr. Thompson reports on state of nickel.

Copper Cliff, Ont.—The Canadian nickel industry is expected to produce 250 million lb of the metal in 1950, the record for any peacetime year, said Dr. John F. Thompson, president of The International Nickel Co. of Canada, Ltd., in a review of the industry.

Before the Korean war it became plain that even this peak supply would not fill demand and a voluntary rationing program was instituted. Nickel is a strategic metal but military requirements are being met fully and shipments are being made to government stockpiles, said Dr. Thompson.

Despite military needs, the bulk of the industry's shipments are made to civilian industry. Dr. Thompson said that International Nickel's production of nickel for the past 6 months has been running at top capacity—made possible through replacement of depleted open pit ore mines with underground facilities.

Steel Uses Most Nickel

He continued that the steel industry again accounted for the largest percentage of nickel consumed and that demand had increased in 1950. Defense demands of the U. S. will create larger demand for stainless steels and nickel will play a vital role in this production, said Dr. Thompson.

"During the first 9 months of 1950 output of stainless steels in the U. S. was the largest of any similar period in the history of the industry," stated Dr. Thompson. "Average quarterly production was in excess of 195,000 tons and indications are that the output for the full year may approach 750,000 tons. Over 60 pct of this production is expected to be nickel-containing grades."

The building field is taking a larger chunk of stainless steels. Architectural parts fabricators have recognized stainless as a building material and are making

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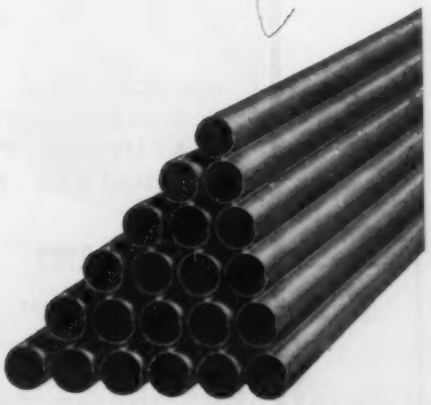


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prefabricated parts with great resistance to the elements.

Other industries are also using more stainless steels, stemming from higher output or production innovations, said Dr. Thompson.

GE Labs Develop Liquid That May Serve Industry as Pipe Dope

Schenectady, N. Y.—"Anaerobic permafil," a material which remains liquid as long as a stream of air bubbles passes through it and then solidifies in a few minutes when removed from air, has been developed by the chemistry division of the General Electric Research Laboratory.

The material can penetrate fine cracks before hardening and a possible application is as a pipe dope for sealing threaded unions or as a tight seal for stopping leaks. Another use may be to do away with the lock nut needed to hold another nut onto a bolt. If the liquid is placed on the threads of a bolt just before the nut is screwed in, it hardens so tightly that great force is needed to remove the nut.

McLouth to Use Top Charging

Detroit — McLouth Steel Corp. has announced plans for converting its four electric furnaces to top charging. Together with extensions to buildings and the installation of two more soaking pits, the modernization program is expected to cost approximately $2 million. It will be completed by midsummer 1951.

Now, McLouth is producing 400,000 tons of steel annually. New equipment may permit production at a rate as high as ½ million tons a year a company spokesman indicated.

At the north end of the building an extension of 200 ft is being made. In addition 150 ft is being added to the south end of the McLouth mill to provide additional coil storage. A 200 ft addition to shipping facilities at the south end of the mill has just been completed.

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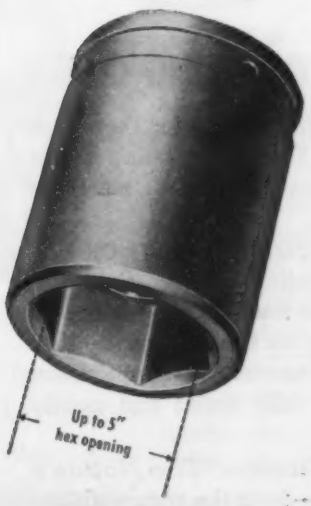




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Titanium Will Take Place Among the World's Tonnage Metals

Chicago—The fourth most abundant structural metal in the earth, titanium, may find itself among tonnage metals within the next 5 years as research overcomes difficulty of producing it, said Dr. Julian Glasser, research metallurgist at Armour Research Foundation of Illinois Institute of Technology.

He said the element titanium was discovered 150 years ago but was not regarded as workable until about 1910. Its more attractive properties: lighter than iron, stronger than aluminum, and more corrosion-resistant than stainless steel, have only been discovered in the past few years.

Overcoming Difficulties

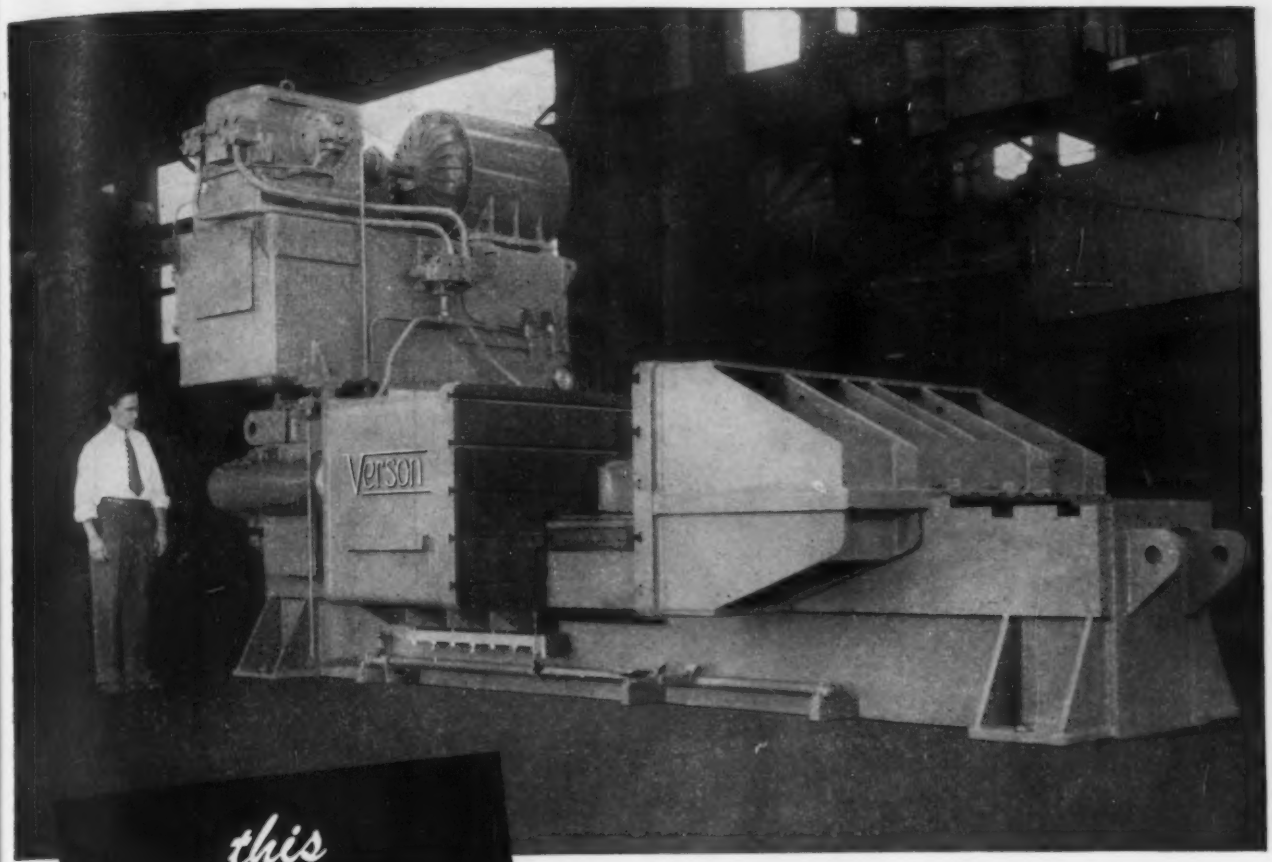
"Until recently metallurgists have been stumped in their efforts to find an economical method of extracting pure titanium from titanium ores," he said. "These smelting and refining difficulties are being rapidly overcome."

Commercial aircraft payloads could be increased with the use of titanium in frame and engine parts. The metal's resistance to salt water corrosion would make it practical for marine use, such as the manufacture of hulls, drive shafts, and propellors. With a melting point twice as high as aluminum, titanium could be used for exhaust manifolds and other "hot spots" that now require steel.

Dr. Glasser said that it is now known how to double the strength of the metal by proper alloying. He is working on a plan to make the Foundation a clearing house for all analytical methods on titanium and its alloys.

Aerojet to Build Calif. Plant

Azusa, Calif. — Aerojet Engineering Corp., General Tire & Rubber Co. subsidiary, has announced plans are virtually completed for acquisition of a 7200 acre site near Sacramento, for manufacture of rockets. Aerojet, is one of the world's largest manufacturers of rocket engines.



this TRADE Verson MARK HYDRAULIC BULLDOZER forms heavy tractor parts

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Rubber Television Anode Shield Manufactured by Continental for the Ucinite Company

Continental Rubber gets into the act

In the unseen act behind your television screen, a small cup-shaped rubber shield plays an important role. This shield fits over the anode on the side of the tube. Its function is to "seal in" high voltage current and thus prevent surface discharges that cause picture distortion.

Ordinary rubber compounds, of course, can't fill the bill. *This* rubber part must have exceptional dielectric properties and unusual stability under sustained heat. It must resist the deteriorating effects of ozone created by electrical discharges. In addition, the rubber shield must be precision molded to insure proper seating against the side of the television tube.

Continental engineers, working closely with Ucinite Company engineers, have met these exacting requirements. This technical cooperation typifies the service in rubber offered by Continental.

When *you* need better engineered rubber parts, why not enlist the service of specialists in molded and extruded rubber?



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This new engineering catalog lists hundreds of standard grommets, bushings, rings and extruded shapes. It will be a valuable addition to your working file. Send for your copy today or . . .

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Cincinnati, Ohio	Indianapolis, Ind.	Philadelphia, Pa.	Syracuse, N. Y.

W. K. Skuce Named to Ready NPA's Controlled Materials Plan

Washington—Key appointments last week indicated the faster tempo of control activities. Perhaps the most important to the metals industry was appointment of Walter C. Skuce to the staff of NPA.

Mr. Skuce will direct planning for a controlled materials plan and presumably will operate the plan when it is ready for institution. He directed WPB's similar plan and also served as deputy vice-chairman of operations. Since 1945, Mr. Skuce has been with the Owens-Corning Fiberglas Corp.

General Clay to Serve

ODM Director Charles E. Wilson also appointed Gen. Lucius D. Clay and Sidney J. Weinberg as special assistants. General Clay, during World War II, was in direct charge of army procurement as deputy director of the services of supply.

His record in this job was considered outstanding. He later served as Deputy Director of the Office of War Mobilization and Reconversion. He is now chairman of the board of the Continental Can Co., from which firm he is on leave to take his new assignment.

Mr. Weinberg held several key jobs in WPB during his 4 years of service, including the post of vice-chairman.

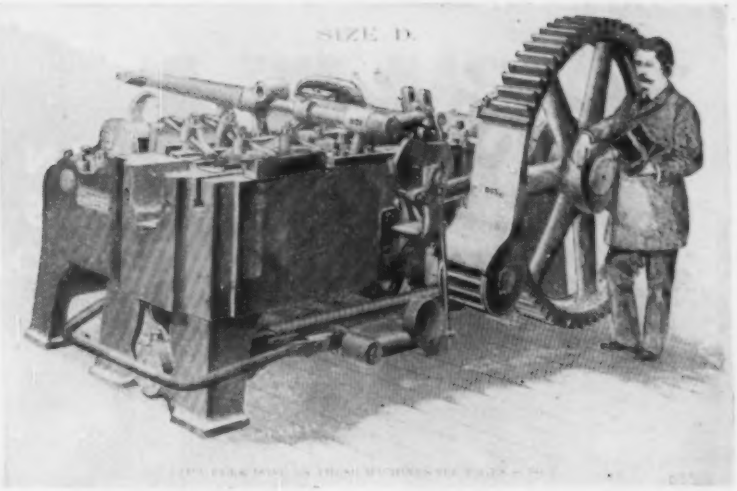
Production Loss 45,000 Tons In Strike at Carnegie-Illinois

Youngstown—The 11 day strike of openhearth workers at the Ohio Works of Carnegie-Illinois Steel Corp., which ended Dec. 18, cost an estimated 45,000 ingot tons of production.

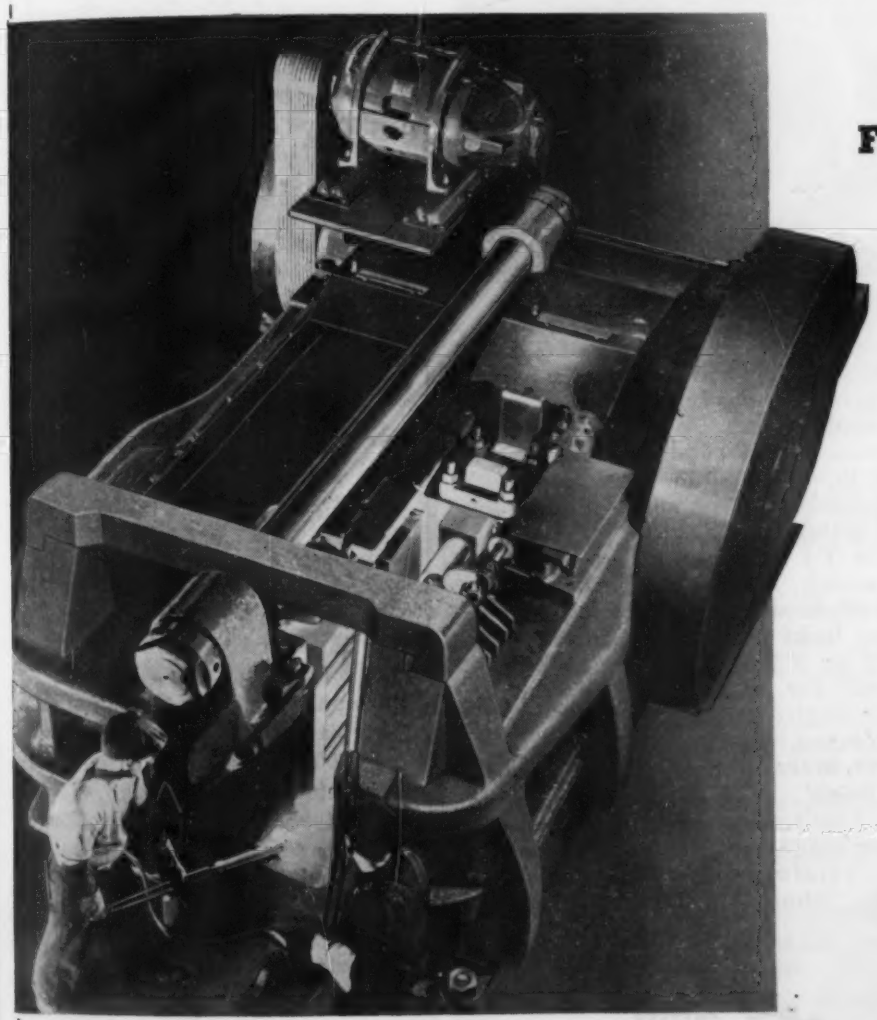
Members of Local 1330, United Steelworkers, voted to return to work when the company refused to discuss a grievance over new incentive pay rates in the openhearth department as long as the strike continued. The grievance will be processed through regular channels.

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Nonferrous Metals Supply Worrying British Industry

London — Nonferrous metals shortages have become acute in the last few weeks. Restrictions of consumption are in force for zinc, aluminum, nickel, sheet steel, and tinplate.

New measures under consideration include restrictions on export of semi-manufactures, prohibition of use of these metals for non-essential articles, and institution of allocation systems.

Questioned regarding metal supply prospects Mr. George Strauss, Minister of Supply, told the House of Commons that zinc available to industry in 1951 is limited, further cuts in consumption are probable, and defense requirements would have to be met from the available supply.

During the first quarter of 1951 the shortage was likely to be more serious. Supply might be restricted to 50 pct. of the rate of consumption during the first 9 months of 1950.

Copper Shortage

A severe shortage of special shapes of copper will affect fabricators in 1951. The prospects for copper in early 1951 will not permit consumption at a higher rate than in the first half of 1950, a cut of about 10 pct. on the current rate of consumption.

Supplies of virgin aluminum will have to be restricted in 1951 to 15,000 tons a month. There is at present no real shortage of general steel, but steel production in 1951 may be affected by difficulties in supplies of steel-making raw materials, particularly imported scrap (mainly from Germany) and imported iron ore.

Truck Fleet Maintenance Clinic

New York—The first large-scale preventive maintenance clinic for operators of commercial vehicle fleets will be held at the meeting of the Technical Committee of the Transport Vehicle Show, Madison Square Garden Exhibition Hall, Feb. 1.

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A MILLION MORE TONS of finished steel a year—that's the goal of a $150,000,000 steel industry expansion program now under way in the Cleveland-Northeast Ohio area!

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- At the Market Center of America, with 81,000,000 people within 500 miles.
- Superlative transportation by land, water and air.
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- Highly skilled industrial workers.
- Many producers of parts, materials and supplies.
- Basic materials right at hand.
- Ample financial services.
- Complete business and industrial services.
- Favorable tax structure (no state income tax).
- Diversified industries to supply and be supplied.
- Unlimited fresh-water supply.
- Desirable plants and plant sites.
- Excellent living and cultural environment.

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Write today for free copy of new book about Northeast Ohio, entitled *"In the Long Run, The Short Haul Pays!"* Concise, authoritative, written for top management men.



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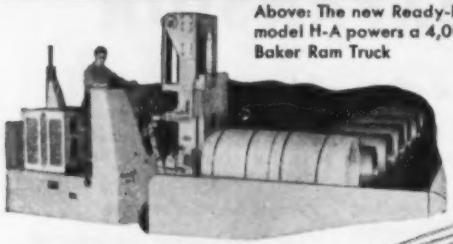
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Above: The new Ready-Power model H-A powers a 4,000 lb. Baker Ram Truck





Above: Ready-Power model J gives this 30,000 lb. Baker plenty of power for handling heavy steel coils

Above: This 3,000 lb. Lewis-Shepard Fork Truck is equipped with a Ready-Power model P

Left: Elwell-Parker 10,000 lb. Crane Truck equipped with Ready-Power model L-2



Right: Ready-Power model H powers this 4,000 lb. Mercury Fork Truck



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54 New Coke Ovens Installed At South African Iron and Steel

London—Fifty-four Becker coke ovens built by the Woodhall-Duckham Co. have gone into production as part of the Vanderbijl Park steelworks of the South African Iron and Steel Industrial Corp. They will carbonize 1,232 tons of coal a day. Total cost of the installation was $4,200,000.

Domestic sources now supply 60 pct. of South Africa's steel requirements, against 36 pct before the War. During 1951, the steel output of South African Iron and Steel Corp. is expected to expand to 1,230,000 ingot tons, rising to 1,344,000 tons in 1952.

89,979 Trailers Needed in '51

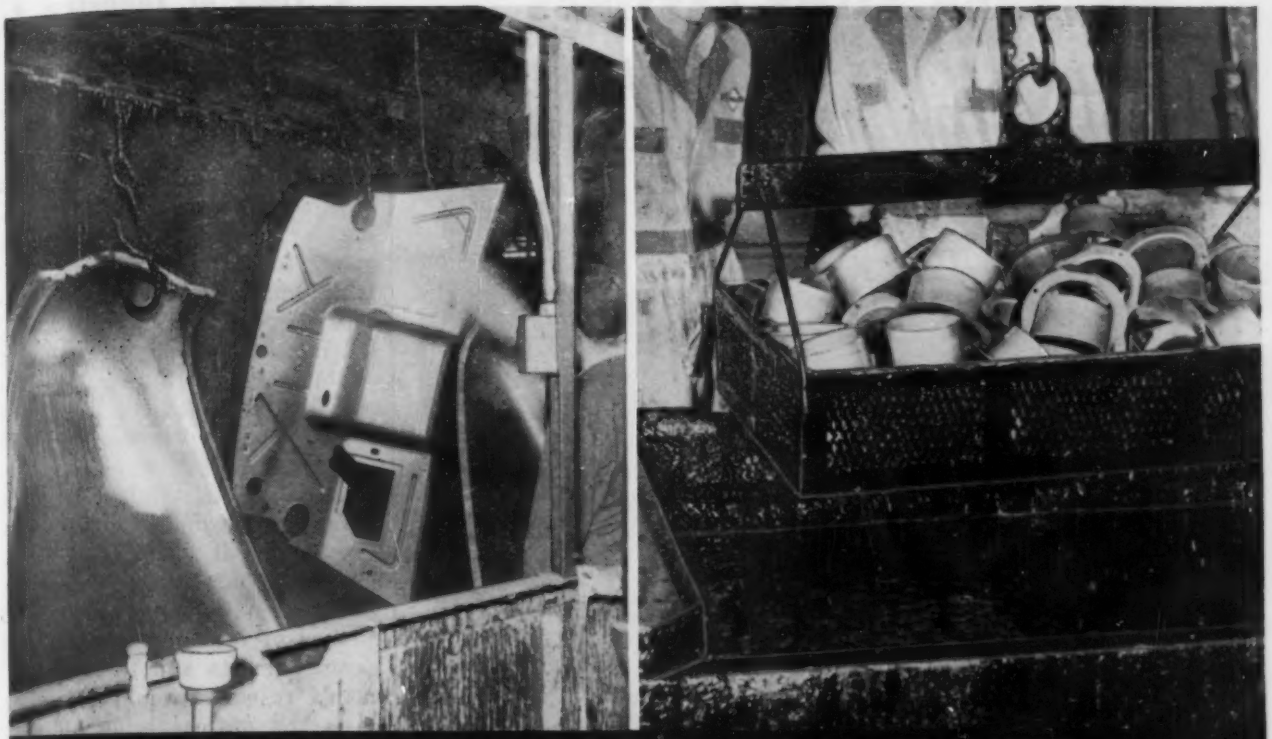
Washington — Total steel of 321,201 tons, plus 69,539,000 lbs of aluminum and 1,540,000 lbs of copper and copper base alloys will be needed by the trailer industry during 1951 to provide America's truckers with an estimated 89,979 new trailers, according to the Truck-Trailer Mfrs. Assn. Total axle demand will be 157,527, the TTMA explained.

Canadian Firm Plans Expansion

Montreal—Consolidated Mining & Smelting Co. of Canada Ltd., will proceed with new plant construction in British Columbia to cost about $15,000,000 according to R. E. Stavert, president. An addition to the electrolytic smelter will be constructed at a cost of about $3,200,000. The enlarged unit will increase capacity by about 70 tons daily.

Bussel Heads NJ Chapter ISIS

Newark — Irving Bussel of Plainfield Iron & Metal Co. was elected president of the New Jersey chapter of the Institute of Scrap Iron & Steel recently, and William Abramson was elected honorary president. Other officers include: Henry Fiestal, Herman Plavin, and Eric Lowenstein, vice-presidents; Murray Kunin, secretary; Eli Bussel, treasurer.



Automobile parts being protected for export shipment. (Left) Hoods and cowls pass through continuous criss-cross spray of NO-OX-ID before crating. (Right) Small parts are dipped in NO-OX-ID.

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Whether you manufacture products for export or domestic markets —if they are made of metal, they need protection against the costly, constant threat of rust.

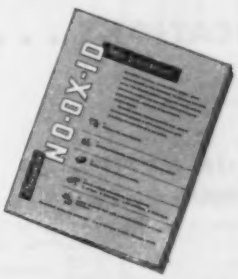
Whether your products require a coating that is transparent, heat resisting, cold resisting, lubricating or dry to the touch, there is a correct NO-OX-ID for your use. There is also a method of application suited to your operation. NO-OX-ID may be applied by hot or cold dip—either by hand or conveyor. It may be sprayed or brushed on—it may be protected in NO-OX-IDized wrappers.

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Dearborn has been serving industry since 1887—put these years of experience to work for you, preventing corrosion on your products and in your plant. Consult with a Dearborn Engineer—he will advise you as to which NO-OX-IDs are best suited to your needs.

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Valve Bodies and Fittings cast at Lebanon in various special sulphuric acid resistant alloys.

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DURING the period of development of special alloys to resist sulphuric acid and sulphuric and nitric acid combinations, Lebanon played an important part in proving their value as casting material. Lebanon Circle L 34 (Stainless Type FA 20*), analysis of which is given below, is an alloy created to meet this demand. Circle L 34, in addition to its resistance to sulphuric and nitric acid, offers good resistance to alkalis and alkali salts.

Our familiarity with the manufacture of castings of special alloy materials means that we can readily meet your requirements. Every Lebanon casting is made to exacting standards, inspected and thoroughly tested before shipping. A complete laboratory, including a million-volt X-Ray machine, is one of the facilities upon which our customers constantly rely.

Do you have copies of the Lebanon Data Sheets? If not, just let us know and we will send them along to you.

LEBANON CIRCLE (L) 34

NOMINAL ANALYSIS

Carbon Max.	0.07 Max.
Silicon	1.25
Manganese	0.75
Chromium	20.50
Nickel	28.50
Molybdenum	2.50
Copper	4.25

NOMINAL PHYSICAL PROPERTIES

Tensile Strength	72,000
Yield Point	35,000
Elongation in 2"—%	45
Brinell Hardness	150

Heat treatment: Water quenched.

*Circle L 34 (FA 20) DuPont Specification 1364

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LEBANON ALLOY AND STEEL Castings CIRCLE L

Dakota Black Hills Program Seeks Method to Recover Beryl

Rapid City, S. Dak.—A Bureau of Mines research program is aiming at discovery of practical means to mine and recover beryl, important to defense and industrial production.

Mining engineers are driving an opening into a pegmatite deposit in the Black Hills of South Dakota, in the Peerless mine, 22 miles southwest of this city. Beryllium, the metal, is used in X-ray tube windows and as an alloying agent with copper.

Paul Zinner, Region V director, said that no effective commercial method of recovering small beryl crystals exists and that the Bureau's research would also seek a method of recovering all minerals within pegmatite.

Atlantic Steel Plans Expansion

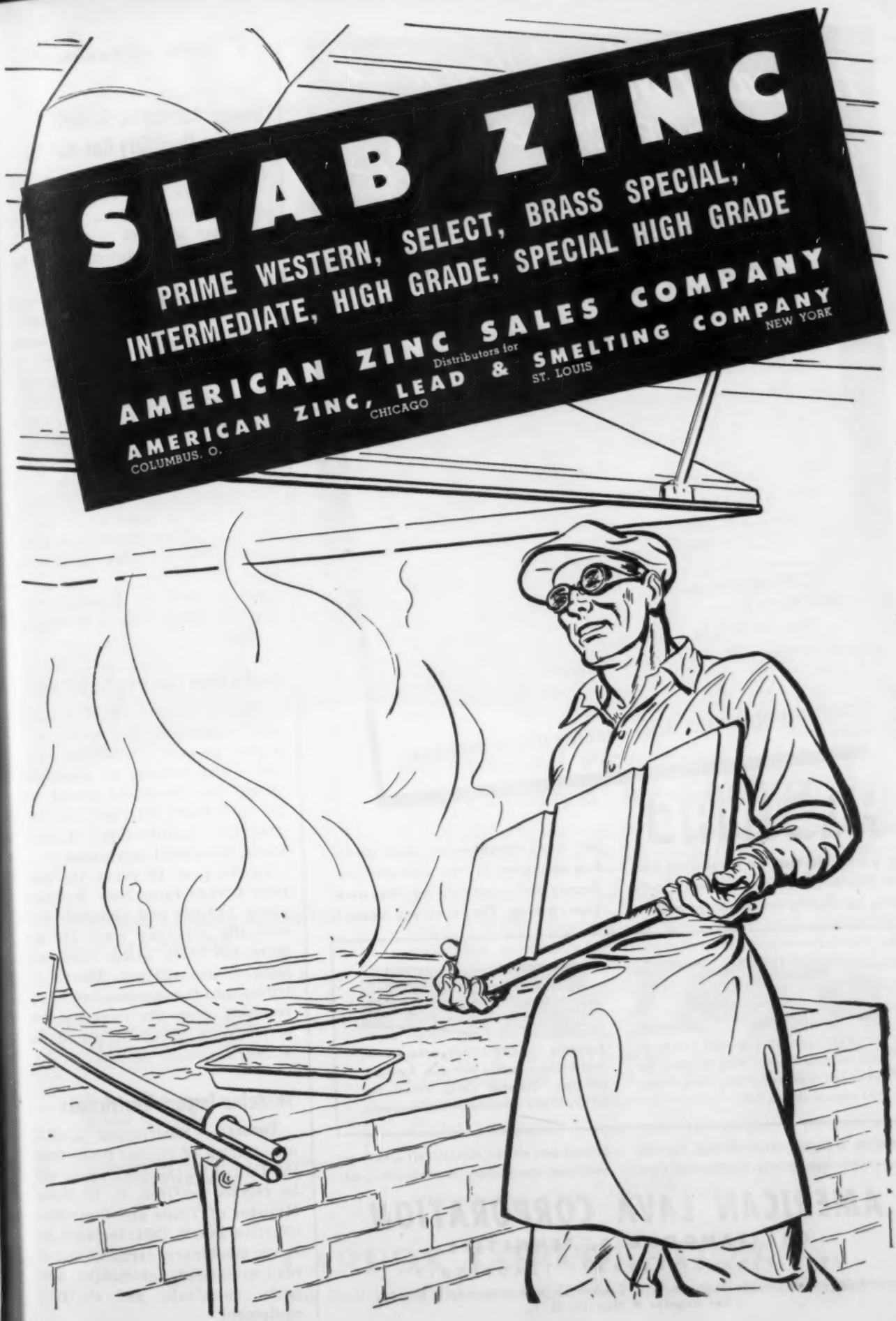
Atlanta, Ga.—A 3-year expansion program to increase steelmaking capacity 50 pct and double production of rolled product is being started by the Atlantic Steel Co., this city, reports Robert S. Lynch, president.

The new program will follow a 4-year $2 million improvement. A 60-ton electric furnace, costing $1,500,000 and providing a minimum of 100,000 tons of steel annually, will be installed.

The firm expects to set a production record for 1950 with 200,000 tons of steel. The present rated capacity of its three openhearth furnaces is 188,000 tons.

Could Support Force of 6 Million

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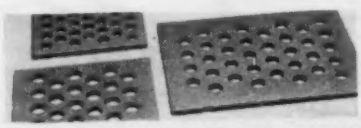
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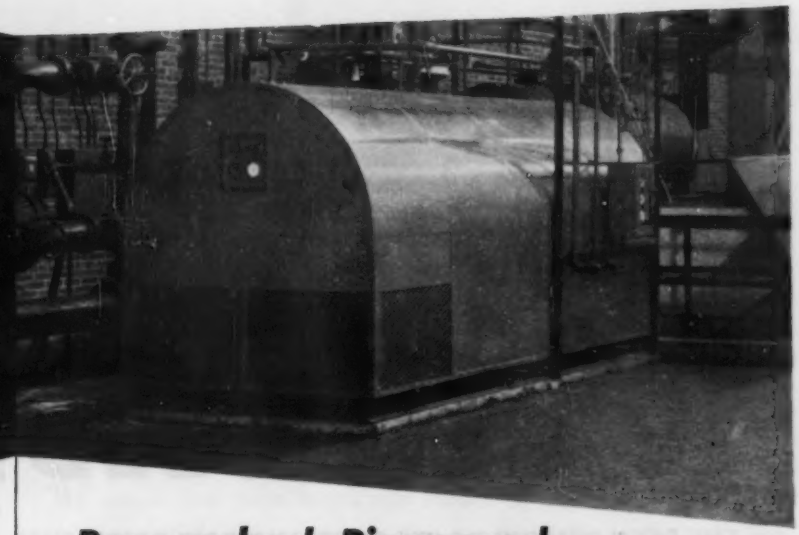
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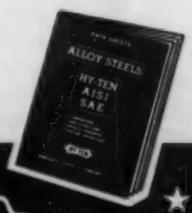
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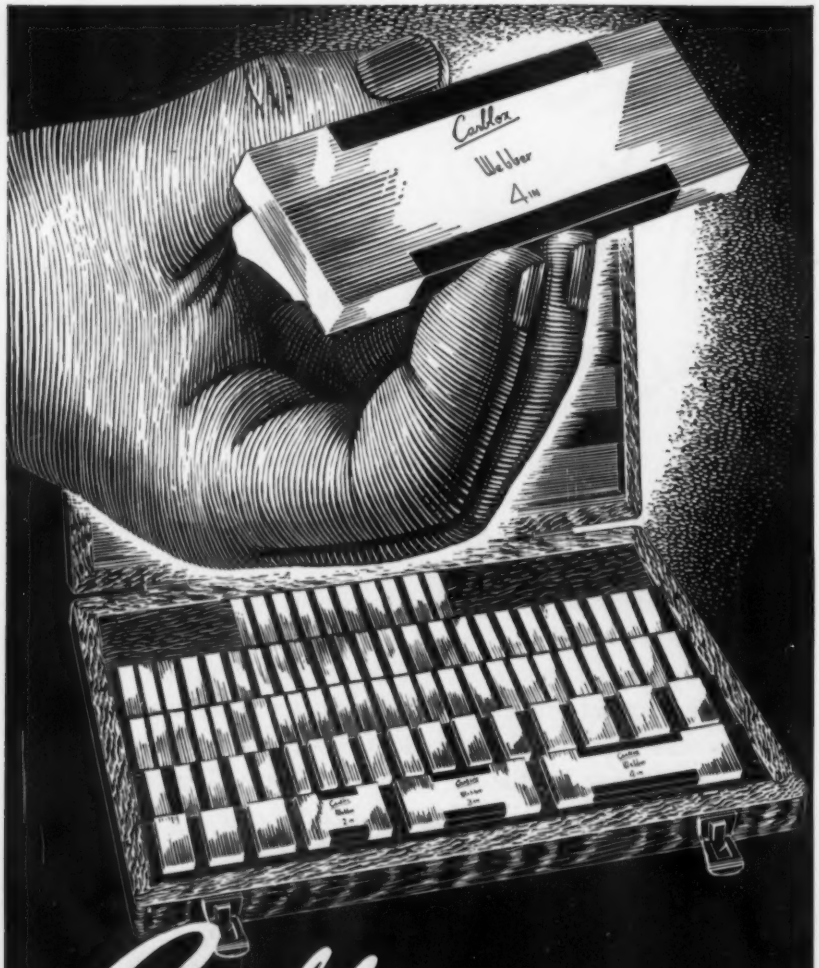
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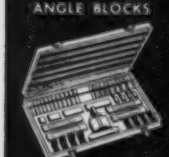


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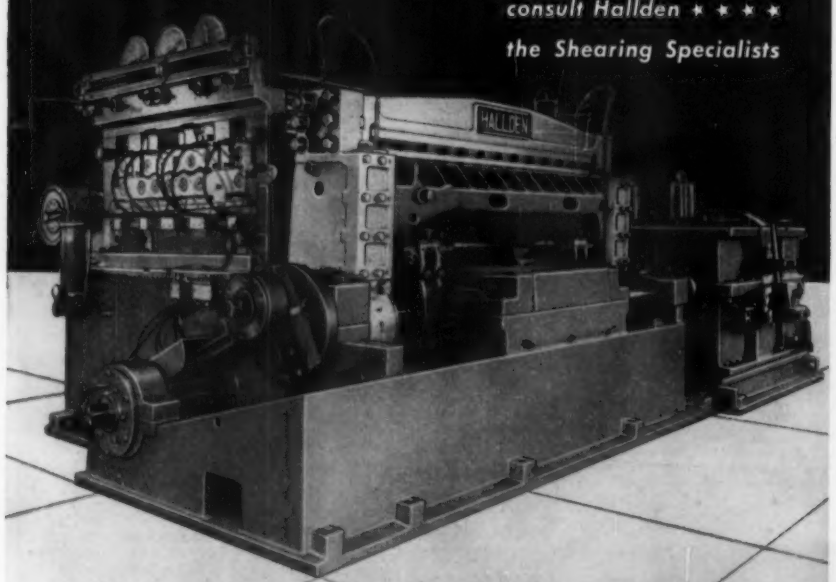
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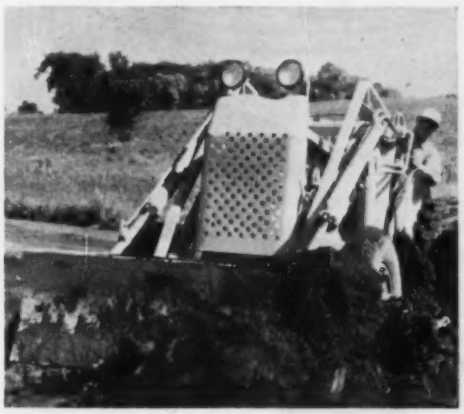


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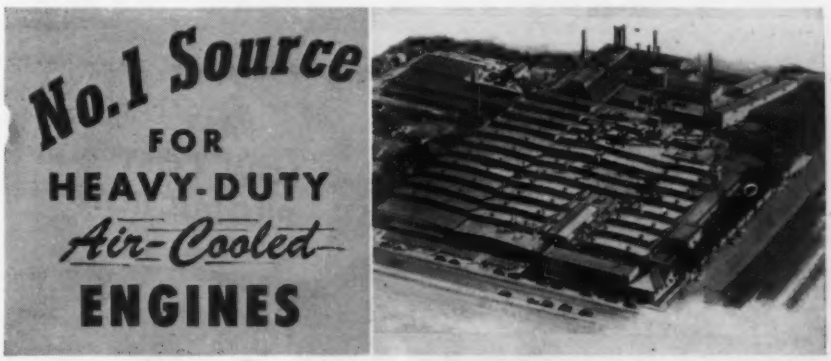
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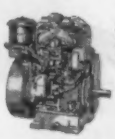
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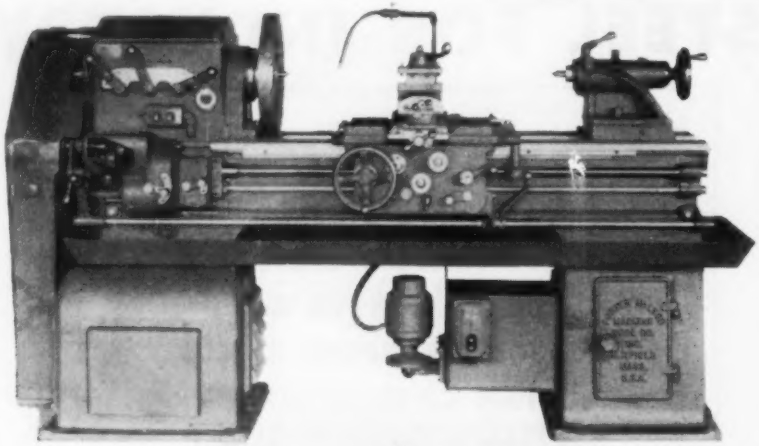
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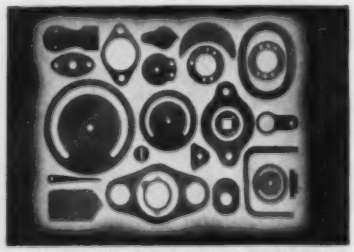
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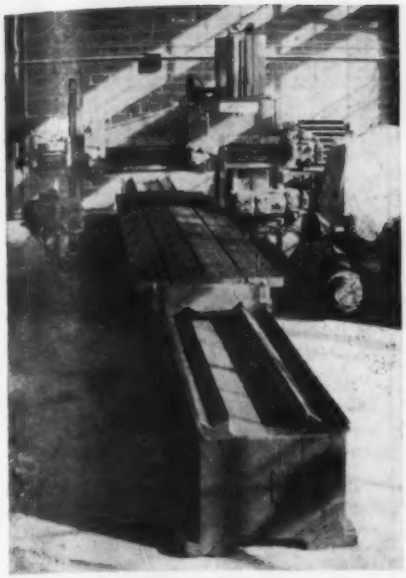
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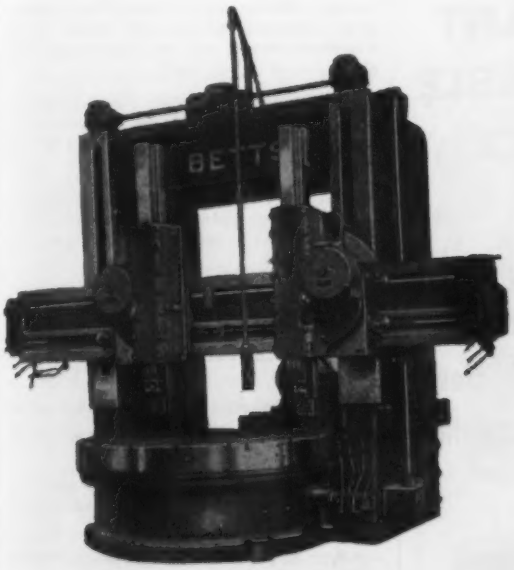
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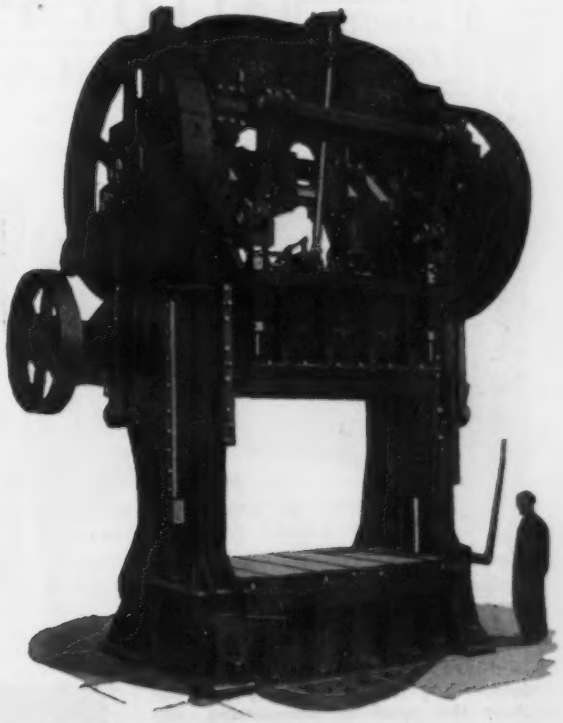
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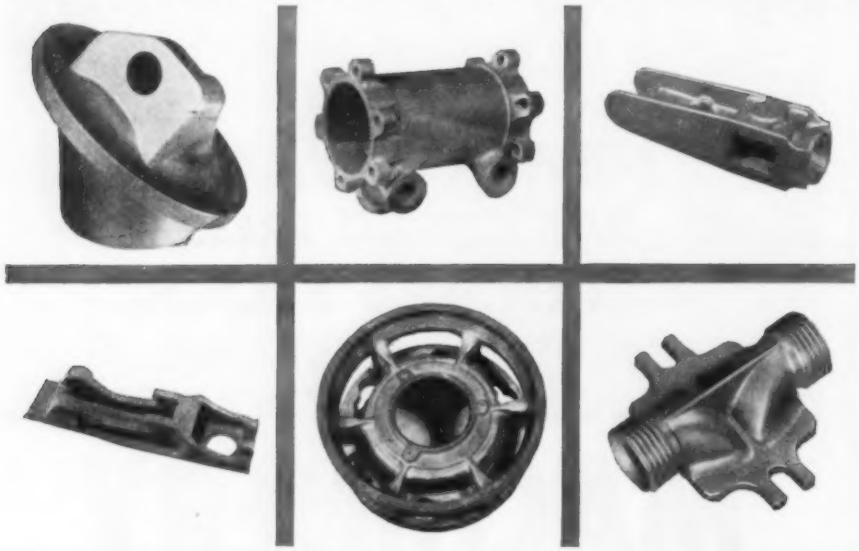
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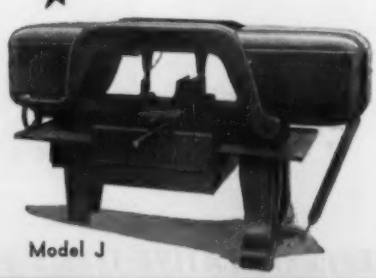
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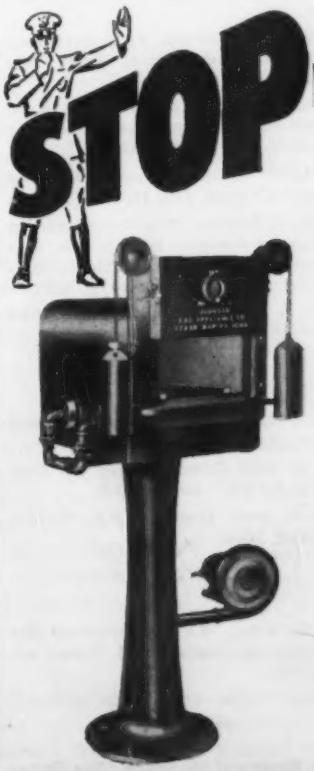
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IRON AGE *markets and prices*

market briefs and bulletins

tinplate prices—Major producers of tinplate have announced changes in prices effective Jan. 1, with Carnegie-Illinois prices effective Jan. 16 (see THE IRON AGE, Nov. 2, 1950, p. 135). New prices for Wheeling, Weirton, and Inland Steel are: 1.50 lb base box, hot-dipped, $8.70; 1.25 lb hot-dipped, $8.45. Electrolytic prices: 0.25, $7.15; 0.50, $7.40; 0.75, $7.80; canmaking quality black plate, $6.25. Wheeling and Weirton's price for special coated manufacturing ternes is $7.50.

arsenal of democracy—Auto cutbacks are beginning to be offset by more defense orders. General Motors will make Republic F-84 Thunderjets at Kansas City. Willys-Overland has received four separate orders for jeeps, the latest one valued at $63 million. GM's Oldsmobile Div. will make 3½ in. rockets for the new superbazooka. Ford will build aircraft engines in the old Tucker plant in Chicago. Cadillac is building tanks in Cleveland, and Continental is building tank engines.

tinplate—To date DO orders for tinplate have not been heavy. However, defense tonnage is expected to increase with application of tin consumption controls Feb. 1. Reason is that tin used for DO orders probably will be outside the quota, and canmakers are likely to slap on DO's whereas previously they were producing such items as ration cans from plate on hand.

refractories prices—General refractories prices are up. Standard chemically bonded chrome brick at Baltimore is up $5 to a new price of $82. Standard magnesite brick is $104 at Baltimore, and chemically bonded magnesite brick is now $93.

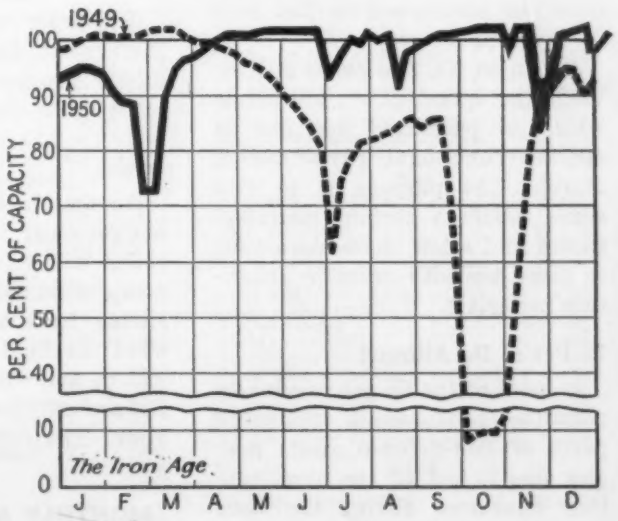
no reaction—Manufacturing companies in the midwest report little or no reaction on the part of suppliers to the government request for a voluntary rollback to Dec. 1 price levels. Suppliers' prices raised after Dec. 1 are reported to have gone up an average of 7 to 10 pct on a variety of products ranging from heavy chemicals to locomotive specialties. Suppliers are reported to feel they should not be required to roll back prices until there is a price adjustment on basic materials.

tube extrusion—National Tube Co. will build a large extrusion plant for manufacture of high alloy seamless specialty tubes, shapes, and bars at its Gary Works. The plant will utilize the recently developed French Ugine-Sejournet process of hot extrusion using glass as a lubricant. Included in facilities will be a 2500-ton hydraulic extrusion press. Capacity will be 3000 tons. Plant is expected to be in operation before the end of the year.

electronic parts makers hit — Material shortages and manpower dislocations will be major factors in 1951 to trouble makers of electronic parts and equipment. Manpower shortage will up demand for intercom systems.

stretching controls — NPA has directed General Services Administration to become exclusive buyer and seller of all natural rubber imported into the United States.

Steel Operations**



District Operating Rates—Per Cent of Capacity**

Week of	Pittsburgh	Chicago	Youngstown	Philadelphia	West	Buffalo	Cleveland	Detroit	Wheeling	South	Ohio River	St. Louis	East	Aggregate
Dec. 24	98.0*	104.0	86.0*	95.0*	100.0*	104.0*	96.5	99.0	103.0	106.0	90.6	85.0*	101.0*	99.0
Dec. 31	99.0	104.0	91.0	97.0	101.4	104.0	96.0	103.0	103.0	104.0	90.0	90.5	101.0	101.0

* Revised.
** Steel operations for the first half of 1950 are based on annual capacity of 98,392,800 net tons. Beginning July 1, 1950, operations are based on new annual capacity of 100,563,500 net tons.

nonferrous metals

outlook and market activities

NONFERROUS METALS PRICES

	Dec. 27	Dec. 28	Dec. 29	Dec. 30	Jan. 1	Jan. 2
Copper, electro, Conn.	24.50	24.50	24.50	24.50	....	24.50
Copper, Lake, delivered	24.625	24.625	24.625	24.625	....	24.625
Tin, Straits, New York	$1.50	$1.51	$1.51*	....	....	$1.51*
Zinc, East St. Louis	17.50	17.50	17.50	17.50	....	17.50
Lead, St. Louis	16.80	16.80	16.80	16.80	....	16.80

Note: Quotations are going prices.

*Tentative.



by r. hatschek

New York—National Production Authority last week issued an order restricting the use of cadmium in 1951, modified order M-7 on aluminum, and told of plans to regulate aluminum scrap.

The cadmium order, M-19, specifically prohibits the use of the metal for any purpose not covered in the order. Those uses which are permitted are of very specific and vital nature (see p. 379). Cadmium stocks are limited to a 30-day supply.

Direction No. 3 to order M-7 revises the quantity of aluminum which is permitted for use in strictly functional parts during March. The purpose is to give some relief to certain manufacturers and allow them more time to come up with suitable substitute materials.

75 Pct to Be Allowed

Instead of the 65 pct previously permitted, producers of component parts of non-defense goods may now use 75 pct of the aluminum they consumed during the base period provided that: (1) The aluminum components serve a functional purpose in the end product, (2) substitution of another material is impractical before March, and (3) the aluminum components do not exceed 1 pct of the total weight of the end product.

The component manufacturer must obtain certification from the manufacturer or assembler of the end product that these provisions are complied with.

Members of the aluminum foundry and castings industry met last week with officials of the NPA for the discussion of a proposed order to control the flow of aluminum scrap so that it will go through normal channels. General approval was given.

The order will be issued after further discussions with other industry groups and it is expected to be quite similar to NPA order M-16 which regulates copper scrap.

As this is being written, it is not yet clear just what effect this order will have on the price of scrap aluminum. People are just sitting back and waiting to see what the final form of the order will be and what the price control picture will look like in the New Year. The refiners would like to see lower prices because that would reduce the cost of lost metal and cut down on credit risks.

Certain brass and bronze ingot prices were reduced last week, reflecting lower raw material costs. The 88-10-2 group was lowered 1¢ to 1¼¢ per lb and manganese bronze came down 2¢ per lb. Other prices remained unchanged.

We have just concluded a year which saw almost unbelievable turmoil in the metal markets. Prices have climbed in an inflationary spiral of fantastic proportions; tin and mercury have just about doubled in price since the start of hostilities in Korea and many scrap metal prices have surpassed the price of new metal.

Industry Awaits New Controls

Supplies have become shorter and demand has risen for both civilian and military purposes. NPA was created and the consumption of many of the metals has been curtailed for non-essential use by this organization.

In the coming year we will see even more restrictions on metal uses as a controlled materials plan of some variety takes form in Washington. Price controls will be along as soon as the Economic Stabilization Agency can be organized to the point where its orders would be effective.

MONTHLY AVERAGE PRICES

The average prices of the major non-ferrous metals in December based on quotations appearing in THE IRON AGE, were as follows:

	Cents Per Pound
Electrolytic copper, Conn. Valley	24.50
Lake copper, delivered	24.625
Straits tin, New York	$1.4483
Zinc, East St. Louis	17.50
Zinc, New York	18.22
Lead, St. Louis	16.80
Lead, New York	17.00

MILL PRODUCTS

(Cents per lb, unless otherwise noted)

Aluminum

(Base 30,000 lb, f.o.b. ship. pt. frt. allowed)

Flat Sheet: 0.188 in., 2S, 3S, 30.1¢; 4S, 61S-O, 32¢; 52S, 34.1¢; 24S-O, 24S-OAL, 32.9¢; 75S-O, 75S-OAL, 39.9¢; 0.081 in., 2S, 3S, 31.2¢; 4S, 61S-O, 33.5¢; 52S, 35.6¢; 24S-O, 24S-OAL, 34.1¢; 75S-O, 75S-OAL, 41.3¢; 0.32 in., 2S, 3S, 32.9¢; 4S, 61S-O, 37.1¢; 52S, 39.8¢; 24S-O, 24S-OAL, 41.7¢; 75S-O, 75S-OAL, 52.2¢.

Plate: ¼ in. and heavier: 2S, 3S-F, 28.3¢; 4S-F, 30.2¢; 52S-F, 31.8¢; 61S-O, 30.8¢; 24S-O, 24S-OAL, 32.4¢; 75S-O, 75S-OAL, 38.8¢.

Extruded Solid Shapes: Shape factors 1 to 5, 36.2¢ to 74.5¢; 12 to 14, 36.9¢ to 89¢; 24 to 26, 39.6¢ to $1.16; 36 to 38, 47.2¢ to $1.70.

Rod, Rolled: 1.5 to 4.5 in., 2S-F, 3S-F, 37.5¢ to 33.5¢; cold-finished, 0.375 to 3 in., 2S-F, 3S-F, 40.5¢ to 35¢.

Screw Machine Stock: Rounds, 11S-T3, ⅛ to 11/32 in., 53.5¢ to 42¢; ⅜ to 1½ in., 41.5¢ to 39¢; 1 9/16 to 3 in., 38.5¢ to 36¢; 17S-T4 lower by 1.5¢ per lb. Base 5000 lb.

Drawn Wire: Coiled, 0.051 to 0.374 in., 2S, 39.5¢ to 29¢; 52S, 48¢ to 35¢; 56S, 51¢ to 42¢; 17S-T4, 54¢ to 37.5¢; 61S-T4, 48.5¢ to 37¢; 75S-T6, 84¢ to 67.5¢.

Extruded Tubing, Rounds: 63S-T5, OD in in.: 1¼ to 2, 37¢ to 54¢; 2 to 4, 33.5¢ to 45.5¢; 4 to 6, 34¢ to 41.5¢; 6 to 9, 34.5¢ to 43.5¢.

Roofing Sheet, Flat: 0.019 in. x 28 in. per sheet, 72 in., $1.142; 96 in., $1.522; 120 in., $1.902; 144 in., $2.284. Gage 0.024 in. x 28 in., 72 in., $1.379; 96 in., $1.839; 120 in., $2.299; 144 in., $2.759. Coiled Sheet: 0.019 in. x 28 in., 28.2¢ per lb.; 0.024 in. x 28 in., 26.9¢ per lb.

Magnesium

(F.o.b. mill, freight allowed)

Sheet and Plate: FS1-O, ¼ in. 63¢; 3/16 in. 65¢; ⅛ in. 67¢; B & S Gage 10, 68¢; 12, 72¢; 14, 78¢; 16, 85¢; 18, 93¢; 20, $1.05; 22, $1.27; 24, $1.67. Specification grade higher. Base: 30,000 lb.

Extruded Round Rod: M, diam in., ¼ to 0.311 in., 74¢; ½ to ¾ in., 57.5¢; 1¼ to 1.749 in., 53¢; 2½ to 5 in., 48.5¢. Other alloys higher. Base: Up to ¾ in. diam, 10,000 lb; ¾ to 2 in., 20,000 lb; 2 in. and larger, 30,000 lb.

Extruded Solid Shapes, Rectangles: M. In weight per ft, for perimeters less than size indicated, 0.10 to 0.11 lb, 3.5 in., 62.3¢; 0.22 to 0.25 lb, 5.9 in., 59.3¢; 0.50 to 0.59 lb, 8.6 in., 56.7¢; 1.8 to 2.59 lb, 19.5 in., 53.8¢; 4 to 6 lb, 28 in., 49¢. Other alloys higher. Base, in weight per ft of shape: Up to ½ lb, 10,000 lb; ½ to 1.80 lb, 20,000 lb; 1.80 lb and heavier, 30,000 lb.

Extruded Round Tubing: M, wall thickness, outside diam, in., 0.049 to 0.057, ¼ in. to 5/16, $1.40; 5/16 to ⅜, $1.26; ½ to ⅝, 93¢; 1 to 2 in., 76¢; 0.165 to 0.219, ⅝ to ¾, 61¢; 1 to 2 in., 57¢; 3 to 4 in., 56¢. Other alloys higher. Base, OD in in.: Up to 1½ in., 10,000 lb; 1½ in. to 3 in., 20,000 lb; 3 in. and larger, 30,000 lb.

Titanium

(10,000 lb. base, f.o.b. mill)

Commercially pure and alloy grades: Sheet and strip, HR or CR, $15; Plate, HR, $12; Wire, rolled and/or drawn, $10; Bar, HR or forged, $6; Forgings, $6.

Nickel and Monel

(Base prices, f.o.b. mill)

	"A" Nickel	Monel
Sheets, cold-rolled	74	58
Strip, cold-rolled	80	62
Rods and bars	70	56
Angles, hot-rolled	70	56
Plates	72	57
Seamless tubes	103	93
Shot and blocks	..	51

Copper, Brass, Bronze

(Freight prepaid on 200 lb includes duty)

	Sheets	Rods	Extruded Shapes
Copper	41.03	....	40.63
Copper, h-r	....	36.88	....
Copper, drawn	....	38.18	....
Low brass	39.15	38.84	....
Yellow brass	38.28	37.97	....
Red brass	40.14	39.83	....
Naval brass	42.08	38.61	38.07
Leaded brass	....	32.63	36.70
Com'l bronze	41.13	40.82	....
Mang. bronze	45.96	40.65	41.41
Phos. bronze	60.20	60.45	....
Muntz metal	40.43	36.74	37.99
Ni silver, 10 pct	49.27	51.49	....
Arch. bronze	....	....	35.11

PRIMARY METALS

(Cents per lb, unless otherwise noted)

Aluminum ingot, 99+%, 10,000 lb, freight allowed	19.00
Aluminum pig	18.00
Antimony, American, Laredo, Tex.	32.00
Beryllium copper, 3.75-4.25% Be	$1.56
Beryllium aluminum 5% Be, Dollars per lb contained Be	$69.00
Bismuth, ton lots	$2.25
Cadmium, del'd	$2.55
Cobalt, 97-99% (per lb)	$2.10 to $2.17
Copper, electro, Conn. Valley	24.50
Copper, Lake, delivered	24.625
Gold, U. S. Treas., dollars per oz.	$35.00
Indium, 99.8%, dollars per troy oz.	$2.25
Iridium, dollars per troy oz.	$200
Lead, St. Louis	16.80
Lead, New York	17.00
Magnesium, 99.8+%, f.o.b. Freeport, Tex., 10,000 lb	24.50
Magnesium, sticks, 100 to 500 lb	42.00 to 44.00
Mercury, dollars per 76-lb flask f.o.b. New York	$137 to $142
Nickel, electro f.o.b. New York	53.55
Nickel oxide sinter, f.o.b. Copper Cliff, Ont., contained nickel	46.75
Palladium, dollars per troy oz.	$24.00
Platinum, dollars per troy oz.	$90 to $93
Silver, New York, cents per oz.	80.00
Tin, New York	$1.51
Titanium, sponge	$5.00
Zinc, East St. Louis	17.50
Zinc, New York	18.22
Zirconium copper, 50 pct	$6.20

REMELTED METALS

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5-5 ingot	
No. 115	29.00
No. 120	28.50
No. 123	28.00
80-10-10 ingot	
No. 305	35.00
No. 315	32.00
88-10-2 ingot	
No. 210	46.25
No. 215	43.25
No. 245	36.00
Yellow ingot	
No. 405	25.50
Manganese bronze	
No. 421	30.75

Aluminum Ingot

(Cents per lb, 30,000 lb lots)

95-5 aluminum-silicon alloys	
0.30 copper, max.	33.75-34.25
0.60 copper, max.	33.50-34.00
Piston alloys (No. 122 type)	31.50-32.00
No. 12 alum. (No. 2 grade)	30.75-31.25
108 alloy	31.25-31.75
195 alloy	32.75-33.25
13 alloy	34.00-34.50
ASX-679	31.25-31.75

Steel deoxidizing aluminum, notch-bar granulated or shot

Grade 1—95-97½%	32.50-33.00
Grade 2—92-95%	30.75-31.50
Grade 3—90-92%	30.00-30.50
Grade 4—85-90%	29.50-30.00

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, freight allowed, 500 lb lots)

Copper	
Cast, oval, 15 in. or longer	39½
Electrodeposited	33⅜
Rolled, oval, straight, delivered	38⅜
Forged ball anodes	43
Brass, 80-20	
Cast, oval, 15 in. or longer	34⅜
Zinc, oval	26½
Ball anodes	25½
Nickel 99 pct plus	
Cast	70.50
Rolled, depolarized	71.50
Cadmium	$2.80
Silver 999 fine, rolled, 100 oz lots, per troy oz, f.o.b. Bridgeport, Conn.	79½

Chemicals

(Cents per lb, f.o.b. shipping point)

Copper cyanide, 100 lb drum	52.15
Copper sulfate, 99.5 crystals, bbl.	12.35
Nickel salts, single or double, 4-100 lb bags, frt allowed	20½
Nickel chloride, 375 lb drum	27½
Silver cyanide, 100 oz lots, per oz.	67¼
Sodium cyanide, 96 pct domestic 200 lb drums	19.25
Zinc cyanide, 100 lb drums	45.35

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add ½¢ per lb for shipments of 20,000 to 40,000 lb; add 1¢ for more than 40,000 lb)

	Heavy	Turnings
Copper	23	22¼
Yellow brass	20½	18⅝
Red brass	21½	20⅝
Comm. bronze	21⅝	21
Mang. bronze	19½	18⅝
Brass rod ends	19⅝	....

Custom Smelters' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper wire	21.00
No. 2 copper wire	20.00
Light copper	19.00
Refinery brass	18.50*
Radiators	15.00

*Dry copper content.

Ingot Makers' Scrap

(Cents per pound, carload lots, delivered to producer)

No. 1 copper wire	21.00
No. 2 copper wire	20.00
Light copper	19.00
No. 1 composition	20.00
No. 1 comp. turnings	19.75
Rolled brass	16.50
Brass pipe	18.50
Radiators	15.25
Heavy yellow brass	15.00
Aluminum	
Mixed old cast	20
Mixed old clips	21
Mixed turnings, dry	19⅓
Pots and pans	20
Low copper	22⅓

Dealers' Scrap

(Dealers' buying prices, f.o.b. New York in cents per pound)

Copper and Brass	
No. 1 heavy copper and wire	19½—20
No. 2 heavy copper and wire	18 —18⅓
Light copper	17 —17¼
New type shell cuttings	17 —17⅛
Auto radiators (unsweated)	14½—15
No. 1 composition	17 —17½
No. 1 composition turnings	16½—17
Clean red car boxes	15½—16
Cocks and faucets	15½—16
Mixed heavy yellow brass	13 —13½
Old rolled brass	14 —14½
Brass pipe	17 —17½
New soft brass clippings	17½—18
Brass rod ends	16½—17
No. 1 brass rod turnings	16 —16½
Aluminum	
Alum. pistons and struts	12½—13
Aluminum crankcases	15½—16
2S aluminum clippings	19 —19⅓
Old sheet and utensils	15½—16
Borings and turnings	13
Misc. cast aluminum	15½—16
Dural clips (24S)	15½—16
Zinc	
New zinc clippings	14½—15
Old zinc	11 —11⅛
Zinc routings	8½— 9
Old die cast scrap	8 — 8¼
Nickel and Monel	
Pure nickel clippings	60 —65
Clean nickel turnings	57 —60
Nickel anodes	60 —65
Nickel rod ends	60 —65
New Monel Clippings	22 —25
Clean Monel turnings	18 —20
Old sheet Monel	20 —22
Inconel clippings	26 —28
Nickel silver clippings, mixed	13 —14
Nickel silver turnings, mixed	12 —13
Lead	
Soft scrap, lead	15 —15¼
Battery plates (dry)	8¾— 9
Magnesium	
Segregated solids	9 —10
Castings	5½— 6½
Miscellaneous	
Block tin	85 —90
No. 1 pewter	63 —65
No. 1 auto babbitt	58 —60
Mixed common babbitt	12¼—12½
Solder joints	18½—19
Siphon tops	58 —60
Small foundry type	16¼—16½
Monotype	14¾—15
Lino. and stereotype	14½—14¾
Electrotype	12¾—13
Hand picked type shells	11½—11¾
Lino. and stereo. dross	3 — 3½
Electro. dross	6½— 6¾

SCRAP *iron and steel*

markets
prices
trends

Expect price freeze at formula . . . Railroad specialties, cast may be rolled back . . . New mill to put strain on eastern scrap market.

Scrap centers are shipping out old orders as fast as possible in anticipation of price controls from Washington. The prediction that steelmaking grades would be controlled at current formula levels still stands but some in the trade believe that railroad specialties and cast grades will be rolled back.

Whether to Dec. 1 levels is doubtful. A compromise level is far more likely. Last Tuesday Economic Stabilization Agency officials were to have met with three steel scrap and two foundry grades consumers, five scrap industry men, and five railroad representatives. With sentiment strong that voluntary controls will flop almost as soon as they are suggested, mandatory controls seem to be in the offing.

U. S. Steel Corp.'s announcement that it would build its Fairless Works by late 1952 will have a profound effect on the eastern scrap market. The mill will have a 1.8 million ton ingot capacity. That could mean annual scrap needs of almost 1 million tons of scrap steel—about half of that in purchased scrap.

Will U. S. Steel enter the Pittsburgh scrap area at all—taking from Peter to pay Paul? Or will it compete for scrap in New York and Philadelphia markets and then take the line of least resistance to start tapping the New England scrap market?

News also comes from Washington that the New England steel mill, whose advocates find the time ripe for building, is in the advanced stage of having approvals stamped on certificates of necessity for fast tax writeoff. When that mill is operating it will naturally draw heavily on New England scrap.

PITTSBURGH—With the exception of railroad specialties and cast, the trade expects prices to be controlled at present levels. Specialties and cast are likely to be rolled back. The meeting Jan. 2 with ESA officials will tell the story. Present at the meeting will be five consumers, including three from steel and two from foundries, five representatives of the scrap industry, and five from the railroads. It is conceded that mandatory controls will be applied, everybody agrees that voluntary controls won't work. Meanwhile, the flow of scrap has slowed somewhat but with few exceptions consumers are well situated.

PHILADELPHIA — The market here was quiet at press time waiting for new government regulations. The freight car shortage and bitter weather have cut into scrap shipments and yard activities. Some slight upgrading is again being reported but it is not prevalent. Yard cast is up $1 on the high side and chemical borings are stronger. The tone of the low phos market is softening.

NEW YORK—No price changes were reported in this market but old order shipments were moving fast and thick. Brokers were hoping that the ESA would control scrap prices at "realistic levels" to forestall drying up of scrap sources. News of U. S. Steel's Fairless Works started predictions on what that mill's demand would mean to the local market.

DETROIT—The Detroit scrap market is very quiet this week. Most market observers here feel controlled prices for scrap are just around the corner. Dealers are reported to be moving material out of their yards at a brisk pace, Apparently in anticipation of a price freeze or an actual rollback. Cast grades are quiet and there is considerable resistance to placing new orders.

CLEVELAND—Scrap is moving at the formula here and in the Valley this week as the trade awaits mandatory price controls. Brokers and dealers are trying to get the tonnage out and mills are buying unprepared material at good prices. Time and the cost of preparation are probably responsible for this. Some mills indicate that current shipments are less than consumption and in view of the weather, the inventory outlook is not reassuring. Best guess here is that No. 1 will be pegged at the present level, or possibly at a dollar or two under, but foundry material is due for a real slash.

CHICAGO—There was little activity in the Chicago scrap market this week. Openhearth grades of scrap are moving freely on old orders. One major consumer is reported to be out of the market for the next 45 days.

Several consumers are out of the market for short shoveling turnings and broker offerings are lower for all turnings grades. However, there is not sufficient consumer buying to arrive at a new firm price and quotations on these items reflect last consumer prices.

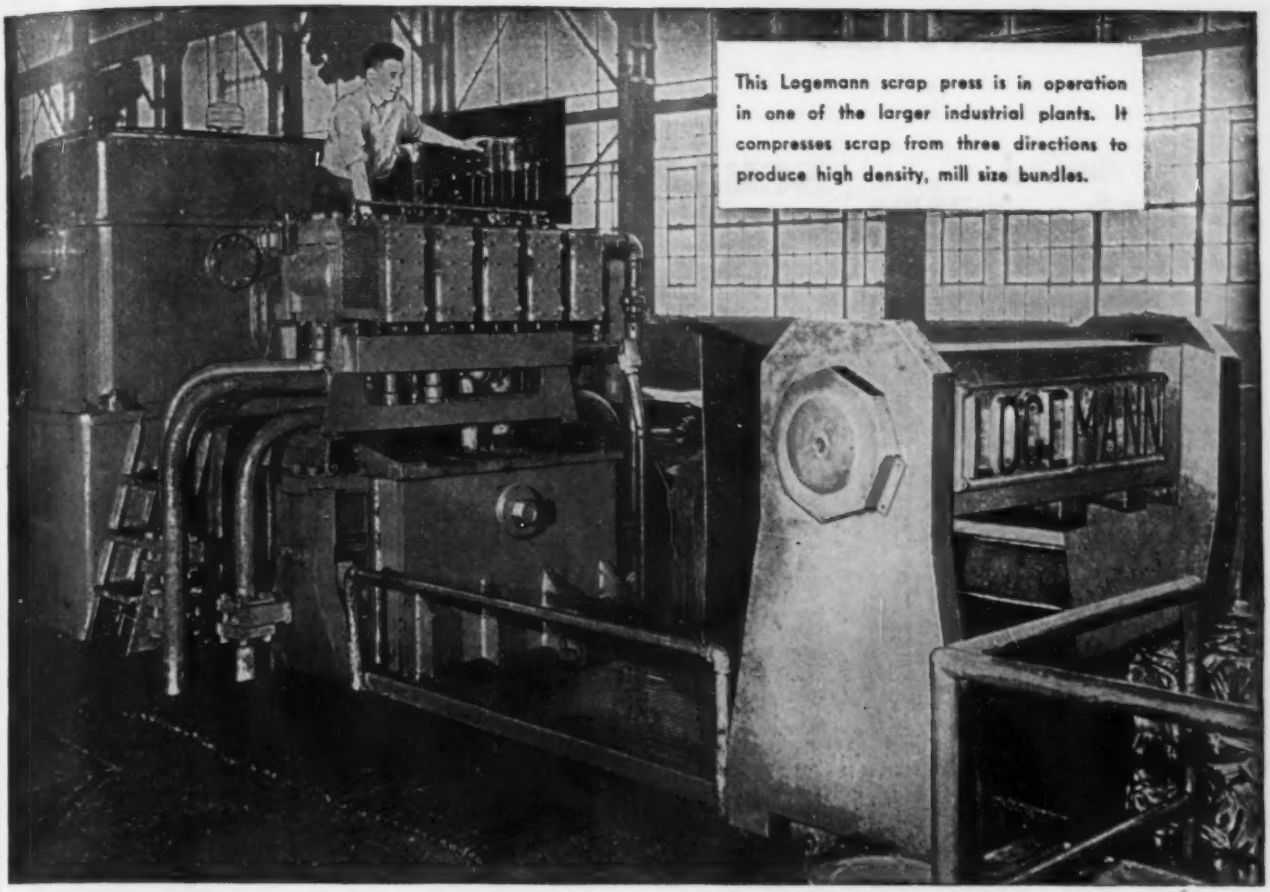
Low phos and cast grades dropped about $2 per gross ton as some foundries were resisting the higher prices. Consumer prices on railroad items, low phos and cast are expected to drop off sharply in the next few weeks.

BIRMINGHAM—The scrap metal market here is at a complete standstill. Neither users nor brokers are doing any buying and brokers who a week ago were frantically seeking scrap are turning down offers. Everyone who has made sales, however, is shipping as fast as possible as a result of a call for a price control meeting called in Washington for January 2.

CINCINNATI—Prices are unchanged in an anticipatory but active market here. Openhearth and blast furnace grades are moving freely at the formula and dealers are selling. Some tonnage is moving to other districts, including the Valley, which is an indicator of the terrific demand. Foundry grades are easing.

BUFFALO—With controls expected in the near future, the scrap market was content to mark time as dealers were shipping against substantial orders still outstanding. Snow and cold weather interfered with yard work.

BOSTON—A sudden lull in the market was felt here as controls were awaited. No. 1 heavy and other formula price items were selling over the top.



This Logemann scrap press is in operation in one of the larger industrial plants. It compresses scrap from three directions to produce high density, mill size bundles.

Self-Contained . . . .
Triple Compression . .
Automatically Controlled

LOGEMANN SCRAP PRESSES

handle high tonnages with minimum labor . . . *at low cost*

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LOGEMANN METAL BALERS

. . . are built in a large range of sizes to meet specific conditions. Let Logemann's engineering service help you arrive at the most efficient and economical way of handling your scrap.

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The compact unit illustrated is completely self-contained with oil tank and pump located directly over the press . . . utilizing the advantages of short pipe lines. Automatic controls, mounted in front of pump, give the operator full visibility at all times. Controls operate rams successively within a single rigid box. There is no complex construction which means there is *no need for specially-trained maintenance crews.*

Both two-ram and three-ram models are available with automatic controls or for manual manipulation.

Logemann Bros. Co. have specialized in the production of scrap metal presses for sheet mills, stamping plants, scrap yards, and metal manufacturing plants of all types for nearly 75 years. Write for full information — please state the nature of your scrap and tonnage.

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Iron and Steel

SCRAP PRICES

Going prices as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Pittsburgh

No. 1 hvy. melting	$45.75 to $46.50
No. 2 hvy. melting	43.75 to 44.50
No. 1 bundles	45.75 to 46.50
No. 2 bundles	42.75 to 43.50
Machine shop turn.	37.75 to 38.50
Mixed bor. and ms. turns.	37.75 to 38.50
Shoveling turnings	39.75 to 40.50
Cast iron borings	39.75 to 40.50
Low phos. plate	56.00 to 56.50
Heavy turnings	46.50 to 47.00
No. 1 RR. hvy. melting	45.75 to 46.50
Scrap rails, random lgth.	64.50 to 65.00
Rails 2 ft and under	68.00 to 69.00
RR. steel wheels	63.00 to 64.00
RR. spring steel	63.00 to 64.00
RR. couplers and knuckles	63.00 to 64.00
No. 1 machinery cast	67.50 to 68.00
Mixed yard cast.	57.50 to 58.00
Heavy breakable cast	52.50 to 53.00
Malleable	71.00 to 72.00

Chicago

No. 1 hvy. melting	$44.25 to $45.00
No. 2 hvy. melting	42.00 to 43.00
No. 1 factory bundles	44.00 to 45.00
No. 1 dealers' bundles	44.00 to 45.00
No. 2 dealers' bundles	41.00 to 42.00
Machine shop turn.	36.00 to 37.00
Mixed bor. and turn.	36.00 to 37.00
Shoveling turnings	38.00 to 39.00
Cast iron borings	38.00 to 39.00
Low phos. forge crops	55.00 to 56.00
Low phos. plate	52.00 to 53.00
No. 1 RR. hvy. melting	47.00 to 48.00
Scrap rails, random lgth.	62.00 to 63.00
Rerolling rails	65.50 to 66.50
Rails 2 ft and under	67.00 to 69.00
Locomotive tires, cut	58.00 to 59.00
Cut bolsters & side frames	54.00 to 55.00
Angles and splice bars	63.00 to 64.00
RR. steel car axles	100.00 to 105.00
RR. couplers and knuckles	58.00 to 59.00
No. 1 machinery cast.	62.00 to 64.00
No. 1 agricul. cast.	58.00 to 60.00
Heavy breakable cast.	53.00 to 55.00
RR. grate bars	48.00 to 49.00
Cast iron brake shoes	52.00 to 53.00
Cast iron car wheels	58.00 to 59.00
Malleable	78.00 to 82.00

Philadelphia

No. 1 hvy. melting	$44.00 to $45.00
No. 2 hvy. melting	42.00 to 43.00
No. 1 bundles	44.00 to 45.00
No. 2 bundles	41.00 to 42.00
Machine shop turn.	36.00 to 37.00
Mixed bor. and turn.	35.00 to 36.00
Shoveling turnings	38.00 to 39.00
Low phos. punchings, plate	50.00 to 51.00
Low phos. 5 ft and under	50.00 to 51.00
Low phos. bundles	48.00 to 49.00
Hvy. axle forge turn.	44.00 to 45.00
Clean cast chem. borings	42.00 to 43.00
RR. steel wheels	53.00 to 54.00
RR. spring steel	53.00 to 54.00
Rails 18 in. and under	66.00 to 67.00
No. 1 machinery cast.	62.00 to 63.00
Mixed yard cast.	53.00 to 55.00
Heavy breakable cast.	53.00 to 54.00
Cast iron carwheels	67.00 to 68.00
Malleable	69.00 to 70.00

Cleveland

No. 1 hvy. melting	$45.25 to $46.00
No. 2 hvy. melting	43.25 to 44.00
No. 1 busheling	45.25 to 46.00
No. 1 bundles	45.25 to 46.00
No. 2 bundles	42.25 to 43.00
Machine shop turn.	37.25 to 38.00
Mixed bor. and turn.	39.25 to 40.00
Shoveling turnings	39.25 to 40.00
Cast iron borings	39.25 to 40.00
Low phos. 2 ft and under	47.75 to 48.50
Steel axle turn.	44.25 to 45.00
Drop forge flashings	45.25 to 46.00
No. 1 RR. hvy. melting	46.00 to 46.50
Rails 3 ft and under	70.00 to 71.00
Rails 18 in. and under	72.00 to 73.00
No. 1 machinery cast.	69.00 to 70.00
RR. cast.	71.00 to 72.00
RR. grate bars	50.00 to 51.00
Stove plate	55.00 to 56.00
Malleable	76.00 to 77.00

Youngstown

No. 1 hvy. melting	$45.75 to $46.50
No. 2 hvy. melting	43.75 to 44.50
No. 1 bundles	45.75 to 46.50
No. 2 bundles	43.75 to 44.50
Machine shop turn	37.75 to 38.50
Shoveling turnings	39.75 to 40.50
Cast iron borings	39.75 to 40.50
Low phos. plate	48.25 to 49.00

Buffalo

No. 1 hvy. melting	$44.50 to $45.25
No. 2 hvy. melting	42.50 to 43.25
No. 1 busheling	42.50 to 43.25
No. 1 bundles	43.50 to 44.25
No. 2 bundles	41.50 to 42.25
Machine shop turn.	36.50 to 37.25
Mixed bor. and turn.	36.50 to 37.25
Shoveling turnings	38.50 to 39.25
Cast iron borings	36.50 to 37.25
Low phos. plate	48.25 to 49.00
Scrap rails, random lgth.	55.00 to 56.00
Rails 2 ft and under	60.00 to 61.00
RR. steel wheels	60.00 to 61.00
RR. spring steel	60.00 to 61.00
RR. couplers and knuckles	60.00 to 61.00
No. 1 machinery cast.	59.00 to 60.00
No. 1 cupola cast.	54.00 to 55.00
Small indus. malleable	60.00 to 61.00

Birmingham

No. 1 hvy. melting	$42.50 to $43.50
No. 2 hvy. melting	38.50 to 39.50
No. 2 bundles	37.50 to 38.50
No. 1 busheling	38.00 to 39.00
Machine shop turn.	31.00 to 32.00
Shoveling turnings	32.00 to 33.00
Cast iron borings	27.00 to 28.00
Bar crops and plate	47.00 to 48.00
Structural and plate	46.00 to 47.00
No. 1 RR. hvy. melting	43.00 to 44.00
Scrap rails, random lgth.	58.00 to 59.00
Rerolling rails	61.00 to 62.00
Rails 2 ft and under	66.00 to 67.00
Angles & splice bars	59.00 to 60.00
Std. steel axles	61.00 to 62.00
No. 1 cupola cast.	59.00 to 60.00
Stove plate	54.00 to 55.00
Cast iron carwheels	46.00 to 47.00

St. Louis

No. 1 hvy. melting	$45.00 to $47.00
No. 2 hvy. melting	41.00 to 42.00
No. 2 bundled sheets	40.00 to 41.00
Machine shop turn.	28.50 to 29.50
Shoveling turnings	35.00 to 36.00
Rails, random lengths	58.00 to 59.00
Rails 3 ft and under	66.00 to 68.00
Locomotive tires, uncut	57.00 to 58.00
Angles and splice bars	66.00 to 68.00
Std. steel car axles	100.00 to 105.00
RR. spring steel	57.00 to 58.00
No. 1 machinery cast.	65.00 to 66.00
Hvy. breakable cast.	56.00 to 58.00
Cast iron brake shoes	55.00 to 57.00
Stove plate	53.00 to 55.00
Cast iron car wheels	63.00 to 65.00
Malleable	55.00 to 57.00

New York

Brokers' Buying prices per gross ton, on cars:

No. 1 hvy. melting	$39.00
No. 2 hvy. melting	37.00
No. 2 bundles	36.00
Machine shop turn.	31.00
Mixed bor. and turn.	31.00
Shoveling turnings	33.00
Clean cast chem. bor.	$38.00 to 39.00
No. 1 machinery cast.	52.00 to 53.00
Mixed yard cast.	47.00 to 48.00
Charging box cast.	47.00 to 48.00
Heavy breakable cast.	46.00 to 47.00
Unstrp. motor blocks	42.00 to 43.00

Boston

Brokers' Buying prices per gross ton, on cars:

No. 1 hvy. melting	$35.67
No. 2 hvy. melting	33.67
No. 1 bundles	38.00
No. 2 bundles	$33.67
Machine shop turn.	27.67
Mixed bor. and turn.	$26.67 to 27.67
Shoveling turnings	29.67
No. 1 busheling	35.67
Clean cast chem. borings	33.00 to 34.00
No. 1 machinery cast.	48.00 to 49.00
Mixed cupola cast.	44.00 to 45.00
Heavy breakable cast.	42.00 to 43.00
Stove plate	42.00 to 43.00

Detroit

Brokers' Buying prices per gross ton, on cars:

No. 1 hvy. melting	$40.25
No. 2 hvy. melting	38.25
No. 1 bundles, openhearth	40.25
No. 1 bundles, electric furnace	42.75
New busheling	40.25
Flashings	40.25
Machine shop turn.	32.25
Mixed bor. and turn.	32.25
Shoveling turnings	34.25
Cast iron borings	34.25
Low phos. plate	42.75
No. 1 cupola cast.	$56.00 to 58.00
Heavy breakable cast.	47.00 to 49.00
Stove plate	46.00 to 48.00
Automotive cast.	60.00 to 62.00

Cincinnati

Per gross ton, f.o.b. cars:

No. 1 hvy. melting	$44.25
No. 2 hvy. melting	42.25
No. 1 bundles	44.25
No. 2 bundles, black	42.25
No. 2 bundles, mixed	41.25
Machine shop turn.	33.00
Mixed bor. and turn.	34.00
Shoveling turnings	34.00
Cast iron borings	34.00
Low phos.-steel	46.75
Low phos. 18 in. under	62.00
Rails, random lengths	$62.00 to 63.00
Rails, 18 in. and under	72.00 to 73.00
No. 1 cupola cast.	65.00 to 66.00
Hvy. breakable cast.	59.00 to 60.00
Drop broken cast.	71.00 to 72.00

San Francisco

No. 1 hvy. melting	$30.00
No. 2 hvy. melting	28.00
No. 1 bundles	30.00
No. 2 bundles	28.00
No. 3 bundles	25.00
Machine shop turn.	16.00
Elec. fur. 1 ft and under	$40.00 to 42.50
No. 1 RR. hvy. melting	30.00
Scrap rails random lgth.	30.00
No. 1 cupola cast.	43.00 to 46.00

Los Angeles

No. 1 hvy. melting	$30.00
No. 2 hvy. melting	28.00
No. 1 bundles	30.00
No. 2 bundles	28.00
No. 3 bundles	25.00
Mach. shop turn.	16.00
Elec. fur. 1 ft and under	$42.00 to 45.00
No. 1 RR. hvy. melting	30.00
Scrap rails, random lgth.	30.00
No. 1 cupola cast.	52.00

Seattle

No. 1 hvy. melting	$28.00
No. 2 hvy. melting	28.00
No. 1 bundles	22.00
No. 2 bundles	22.00
No. 3 bundles	18.00
Elec. fur. 1 ft and under	$40.00 to 45.00
RR. hvy. melting	29.00
No. 1 cupola cast	45.00

Hamilton, Ont.

No. 1 hvy. melting	$30.00
No. 1 bundles	30.00
No. 2 bundles	29.50
Mechanical bundles	28.00
Mixed steel scrap	26.00
Mixed bor. and turn.	23.00
Rails, remelting	30.00
Rails, rerolling	32.00
Bushelings	24.50
Bush., new fact. prep'd.	29.00
Bush., new fact, unprep'd.	23.00
Short steel turnings	23.00
Cast scrap	45.00

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LEADERS IN IRON AND STEEL SCRAP SINCE 1889

Comparison of Prices

Steel prices in this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Flat-Rolled Steel: (cents per pound)	Jan. 2, 1951	Dec. 26, 1950	Dec. 5, 1950	Jan.3 1950
Hot-rolled sheets	3.60	3.60	3.60	3.35
Cold-rolled sheets	4.35	4.35	4.35	4.10
Galvanized sheets (10 ga)	4.80	4.80	4.80	4.40
Hot-rolled strip	3.50	3.50	3.50	3.25
Cold-rolled strip	4.75	4.75	4.75	4.18
Plate	3.70	3.70	3.70	3.50
Plates wrought iron	7.85	7.85	7.85	7.85
Stains C-R-strip (No. 302)	36.50	36.50	36.50	33.00
Tin and Terneplate: (dollars per base box)				
Tinplate (1.50 lb) cokes.	$7.50	$7.50	$7.50	$7.50
Tinplate, electro (0.50 lb)	6.60	6.60	6.60	6.60
Special coated mfg. ternes	6.35	6.35	6.35	6.50
Bars and Shapes: (cents per pound)				
Merchant bars	3.70	3.70	3.70	3.45
Cold finished bars	4.55	4.55	4.55	3.995
Alloy bars	4.30	4.30	4.30	3.95
Structural shapes	3.65	3.65	3.65	3.40
Stainless bars (No. 302)	31.25	31.25	31.25	28.50
Wrought iron bars	9.50	9.50	9.50	9.50
Wire: (cents per pound)				
Bright wire	4.85	4.85	4.85	4.50
Rails: (dollars per 100 lb)				
Heavy rails	$3.60	$3.60	$3.60	$3.40
Light rails	4.00	4.00	4.00	3.75
Semifinished Steel: (dollars per net ton)				
Rerolling billets	$56.00	$56.00	$56.00	$54.00
Slabs, rerolling	56.00	56.00	56.00	54.00
Forging billets	66.00	66.00	66.00	63.00
Alloy blooms billets, slabs	70.00	70.00	70.00	66.00
Wire Rod and Skelp: (cents per pound)				
Wire rods	4.10	4.10	4.10	3.85
Skelp	3.35	3.35	3.35	3.15

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*

Pig Iron: (per gross ton)	Jan. 2, 1951	Dec. 26, 1950	Dec. 5, 1950	Jan.3 1950
No. 2, foundry, del'd Phila.	$57.77	$57.77	$56.27	$50.42
No. 2, Valley furnace	52.50	52.50	51.00	46.50
No. 2, Southern Cin'ti	55.58	55.58	55.58	46.08
No. 2, Birmingham	48.88	48.88	48.85	39.38
No. 2, foundry, Chicago†	52.50	52.50	52.50	46.50
Basic del'd Philadelphia	56.92	56.92	55.42	49.92
Basic, Valley furnace	52.00	52.00	50.50	46.00
Malleable, Chicago†	52.50	52.50	52.50	46.50
Malleable, Valley	52.50	52.50	52.50	46.50
Charcoal, Chicago	70.56	70.56	70.56	68.56
Ferromanganese‡	181.20	181.20	181.20	173.40

†The switching charge for delivery to foundries in the Chicago district is $1 per ton.
‡Average of U. S. prices quoted on Ferroalloy page.

Scrap: (per gross ton)				
Heavy melt'g steel, P'gh.	$46.13	$46.13	$43.75	$29.75
Heavy melt'g steel, Phila.	44.50	44.50	38.75	23.50
Heavy melt'g steel, Ch'go	*44.63*	44.75	39.75	25.50
No. 1 hy. com. sh't, Det.	40.25	40.25	41.25	24.50
Low phos. Young'n	48.63	48.63	46.25	31.75
No. 1 cast, Pittsburgh	67.75	67.75	62.75	37.50
No. 1 cast, Philadelphia	62.50	62.50	56.50	37.00
No. 1 cast, Chicago	*63.00*	65.00	63.00	38.50
Coke: Connellsville: (per net ton at oven)				
Furnace coke, prompt	$14.25	$14.25	$14.25	$14.00
Foundry coke, prompt	17.25	17.25	16.75	15.75
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electro, Conn.	24.50	24.50	24.50	18.50
Copper, Lake, Conn.	24.625	24.625	24.625	18.625
Tin Straits, New York	$1.51†	$1.50*	1.395	77.50
Zinc, East St. Louis	17.50	17.50	17.50	9.875
Lead, St. Louis	16.80	16.80	16.80	11.80
Aluminum, virgin	19.00	19.00	19.00	17.00
Nickel, electrolytic	53.55	53.55	51.22	42.97
Magnesium, ingot	24.50	24.50	24.50	20.50
Antimony, Laredo, Tex.	32.00	32.00	32.00	32.00

†Tentative. *Revised.

Composite Prices

Starting with the issue of May 12, 1949, the weighted finished steel composite was revised for the years 1941 to date. The weights used are based on the average product shipments for the 7 years 1937 to 1940 inclusive and 1946 to 1948 inclusive. The use of quarterly figures has been eliminated because it was too sensitive. (See p. 130 of May 12, 1949, issue.)

	Finished Steel Base Price	Pig Iron	Scrap Steel
Jan. 2, 1951	4.131¢ per lb.	$52.69 per gross ton	*$45.09* per gross ton
One week ago	4.131¢ per lb.	52.69 per gross ton	45.13 per gross ton
One month ago	4.131¢ per lb.	51.94 per gross ton	40.75 per gross ton
One year ago	3.837¢ per lb.	45.88 per gross ton	26.25 per gross ton

	Finished Steel High	Finished Steel Low	Pig Iron High	Pig Iron Low	Scrap Steel High	Scrap Steel Low
1950	4.131¢ Dec. 1	3.837¢ Jan. 3	$52.69 Dec. 12	$45.88 Jan. 3	$45.13 Dec. 19	$26.25 Jan. 3
1949	3.837¢ Dec. 27	3.3705¢ May 3	46.87 Jan. 18	45.88 Sept. 6	43.00 Jan. 4	19.33 June 28
1948	3.721¢ July 27	3.193¢ Jan. 1	46.91 Oct. 12	39.58 Jan. 6	43.16 July 27	39.75 Mar. 9
1947	3.193¢ July 29	2.848¢ Jan. 1	37.98 Dec. 30	30.14 Jan. 7	42.58 Oct. 28	29.50 May 20
1946	2.848¢ Dec. 31	2.464¢ Jan. 1	30.14 Dec. 10	25.37 Jan. 1	31.17 Dec. 24	19.17 Jan. 1
1945	2.464¢ May 29	2.396¢ Jan. 1	25.37 Oct. 23	23.61 Jan. 2	19.17 Jan. 2	18.92 May 22
1944	2.396¢	2.396¢	$23.61	$23.61	19.17 Jan. 11	15.76 Oct. 24
1943	2.396¢	2.396¢	23.61	23.61	$19.17	$19.17
1942	2.396¢	2.396¢	23.61	23.61	19.17	19.17
1941	2.396¢	2.396¢	$23.61 Mar. 20	$23.45 Jan. 2	$22.00 Jan. 7	$19.17 Apr. 10
1940	2.30467¢ Jan. 2	2.24107¢ Apr. 16	23.45 Dec. 23	22.61 Jan. 2	21.83 Dec. 30	16.04 Apr. 9
1939	2.35367¢ Jan. 3	2.26689¢ May 16	22.61 Sept. 19	20.61 Sept. 12	22.50 Oct. 3	14.08 May 16
1938	2.58414¢ Jan. 4	2.27207¢ Oct. 18	23.25 June 21	19.61 July 6	15.00 Nov. 22	11.00 June 7
1937	2.58414¢ Mar. 9	2.32263¢ Jan. 4	32.25 Mar. 9	20.25 Feb. 16	21.92 Mar. 30	12.67 June 9
1936	2.32263¢ Dec. 28	2.05200¢ Mar. 10	19.74 Nov. 24	18.73 Aug. 11	17.75 Dec. 21	12.67 June 8
1935	2.07542¢ Oct. 1	2.06492¢ Jan. 8	18.84 Nov. 5	17.83 May 14	13.42 Dec. 10	10.33 Apr. 29
1932	1.89196¢ July 5	1.83910¢ Mar. 1	14.81 Jan. 5	13.56 Dec. 6	8.50 Jan. 12	6.43 July 5
1929	2.31773¢ May 28	2.26498¢ Oct. 29	18.71 May 14	18.21 Dec. 17	17.58 Jan. 29	14.08 Dec. 8

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strips, representing major portion of finished steel shipment. Index recapitulated in Aug. 28, 1941, issue and in May 12, 1949.

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.


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STEEL PRICES

Smaller numbers in price boxes indicate producing companies. For main office locations, see key on facing page.
Base prices at producing points apply only to sizes and grades produced in these areas. Prices are in cents per lb unless otherwise noted. Extras apply.

	Pittsburgh	Chicago	Gary	Cleveland	Canton Massillon	Middletown	Youngstown	Bethlehem	Buffalo	Conshohocken	Johnstown	Sparrows Point	Granite City	Detroit
INGOTS Carbon forging, net ton	$52.00[1]													
Alloy, net ton	$54.00[1,17]													$54.00[31]
BILLETS, BLOOMS, SLABS Carbon, rerolling, net ton	$56.00[1,5]	$56.00[1]	$56.00[1]						$56.00[3]		$56.00[3]			
Carbon forging billets, net ton	$66.00[1,5]	$66.00[1,4]	$66.00[1]	$66.00[4]	$66.00[4]				$66.00[3,4]	$73.00[26]	$66.00[3]			$69.00[31]
Alloy, net ton	$70.00[1,17]	$70.00[1,4]	$70.00[1]		$70.00[4]			$70.00[3]	$70.00[3,4]	$77.00[26]	$70.00[3]			$73.00[31]
PIPE SKELP	3.35[1] 3.45[5]						3.35[1,4]							
WIRE RODS	4.10[2] 4.30[18]	4.10[2,4,33]	4.10[6]	4.10[2]			4.10[6]				4.10[3]	4.20[3]		
SHEETS Hot-rolled (18 ga. & hvr.)	3.60[1,5,9,15] 3.75[38]	3.60[8,33]	3.60[1,6,8]	3.60[4]		3.60[7]	3.60[1,4,6] 4.00[13]		3.60[3]	4.00[26]		3.60[3]		3.80[13] 4.40[47]
Cold-rolled	4.35[1,5,9,15] 5.35[62]		4.35[1,6,8]	4.35[4]		4.35[7]	4.35[4,6]		4.35[3]			4.35[3]		4.55[13]
Galvanized (10 gage)	4.80[1,9,15]		4.80[1,8]		4.80[4]	4.80[7]	6.00[64]					4.80[3]		
Enameling (12 gage)	4.65[1]		4.65[1,8]			4.65[7]								
Long ternes (10 gage)	5.20[9,15]						6.00[64]							
Hi str. low alloy, h.r.	5.40[1,5] 5.75[9]	5.40[1]	5.40[1,8] 5.90[6]	5.40[4]			5.40[1,4,13]		5.40[3]	5.65[26]		5.40[3]		
Hi str. low alloy, c.r.	6.55[1,5] 6.90[9]		6.55[1,8] 7.05[6]	6.55[4]			6.55[4]		6.55[3]			6.55[3]		
Hi str. low alloy, galv.	7.20[1]													
STRIP Hot-rolled	3.60[9], 4.00[41,55], 3.75[38] 3.50[4]	3.50[46]	3.50[1,6,8]			3.50[7]	3.50[1,4,6] 4.00[13]		3.50[3,4]	3.90[26]		3.50[3]		4.40[47]
Cold-rolled	4.65[5,9] 5.00[28] 5.35[62,69,88]	4.90[8,56]	4.90[6]	4.65[2]		4.65[7]	4.65[4,6] 5.35[13]		4.65[3]			4.65[3]		5.45[47] 5.60[58] 5.60[61]
Hi str. low alloy, h.r.	5.75[9]		5.50[1] 5.30[6] 5.80[6]				4.95[4], 5.50[1] 5.40[13]			5.55[26]				
Hi str. low alloy, c.r.	7.20[9]			6.70[5]			6.20[4], 6.55[13]							
TINPLATE† Cokes, 1.50-lb base box 1.25 lb, deduct 25¢	$7.50[1] $8.70[9,15]		$7.50[1] $8.70[6]				$8.70[4]					8.55[3]		
Electrolytic 0.25, 0.50, 0.75 lb box	Deduct $1.55, $1.30 and 90¢ respectively from 1.50-lb coke base box price													
BLACKPLATE, 29 gage Hollowware enameling	5.85[1] 6.15[15]		5.85[1]				5.30[4]							
BARS Carbon steel	3.70[1,5] 3.85[9]	3.70[1,4,33]	3.70[1,4,6,8]	3.70[4]	3.70[4]		3.70[1,4,6]		3.70[3,4]		3.70[3]			3.85[31]
Reinforcing‡	3.70[1,5]	3.70[4]	3.70[1,6,8]	3.70[4]			3.70[1,4]		3.70[3,4]		3.70[3]	3.70[3]		
Cold-finished	4.55[2,4,5,63,71]	4.55[2,69,70,73,78]	4.55[74,75]	4.55[2]	4.55[4,83]									4.70[84]
Alloy, hot-rolled	4.30[1,17]	4.30[1,4,33]	4.30[1,6,8]		4.30[4]		4.30[1,6]	4.30[3]	4.30[3,4]		4.30[3]			4.45[31]
Alloy, cold-drawn	5.40[17,52,69,71]	5.40[4,33,69,70,73]	5.40[4] 5.90[74]		5.40[4,83]			5.40[3]	5.40[3]					5.55[84]
Hi str. low alloy, h.r.	5.55[1,5]		5.55[1,6] 6.05[6]	5.55[4]			5.55[1]	5.55[3]	5.55[3]		5.55[3]			
PLATE Carbon steel	3.70[1,5,15]	3.70[1]	3.70[1,6,8]	3.70[4] 4.00[9]			3.70[1,4] 3.95[13]		3.70[3]	4.15[26]	3.70[3]	3.70[3]		
Floor plates			4.75[6]	4.75[5]						4.75[26]				
Alloy	4.75[1] 4.95	4.75[1]	4.75[1]				5.20[13]			5.05[26]	4.75[3]	4.75[3]		
Hi str. low alloy	5.65[1,5]	5.65[1]	5.65[1,6]	5.65[4,5]			5.65[4] 5.70[13]			5.90[26]	5.65[3]	5.65[3]		
SHAPES, Structural	3.65[1,5] 3.90[9]	3.65[1,33]	3.65[1,6]					3.70[3]	3.70[3]		3.70[3]			
Hi str. low alloy	5.50[1,5]	5.50[1]	5.50[1,6]					5.50[3]	5.50[3]		5.50[3]			
MANUFACTURERS' WIRE Bright	4.85[2,5] 5.10[15]	4.85[2] 4.53		4.65[2]				Kokomo—5.80[39]			4.85[3]	4.95[3]	Duluth—4.85[3]	
PILING, Steel Sheet	4.45[1]	4.45[1]	4.45[3]						4.45[3]					

Smaller numbers indicate producing companies. See key at right. Prices are in cents per lb unless otherwise noted. Extras apply.

IRON AGE

STEEL PRICES

Kansas City	Houston	Birmingham	WEST COAST Seattle, San Francisco, Los Angeles, Fontana		
			F=$79.00[19]		INGOTS carbon forging, net ton
	$82.00[83]		F=$80.00[19]		Alloy, net ton
		$56.00[11]	F=$75.00[19]		BILLETS, BLOOMS, SLABS Carbon, rerolling, net ton
	$74.00[83]	$66.00[11]	F=$85.00[19] SF, LA, S=$85.00[62]		Carbon forging billets, net ton
	$78.00[83]		F=$89.00[154] LA=$90.00[83]		Alloy net ton
					PIPE SKELP
	4.50[83]	4.10[4,11]	SF=4.90[3] LA=4.90[34,43]	Worcester=4.40[3] Minnequa=4.35[14]	WIRE RODS
		3.60[4,11]	SF, LA=4.30[34] F=4.55[19]	Niles=5.25[54], Geneva=3.70[16]	SHEETS Hot-rolled (18 ga. & hvr.)
		4.35[11]	SF=5.30[34] F=5.30[19]		Cold-rolled
		4.80[4, 11]	SF, LA=5.55[34]	Ashland=4.80[7]	Galvanized (10 gage)
					Enameling (12 gage)
					Long ternes (10 gage)
		5.40[11]	F=6.35[19]		HI str. low alloy, h.r.
			F=7.50[19]		HI str. low alloy, c.r.
					HI str. low alloy, galv.
4.10[83]	4.90[83]	3.50[4]	SF, LA=4.25[34,43] F=475[19], S=4.50[62]	Atlanta=4.05[65] Minnequa=4.55[14]	STRIP Hot-rolled
			F=6.30[19] LA=6.40[27]	New Haven=5.15[3], 5.85[68]	Cold-rolled
		5.30[11]	F=6.70[19]		HI str. low alloy, h.r.
					HI str. low alloy, c.r.
					TINPLATE Coke, 1.50-lb base box 1.25 lb. deduct 20¢
Deduct $1.55, $1.30 and 90¢ respectively from 1.50-lb coke base box price					Electrolytic 0.25, 0.50, 0.75 lb box
					BLACKPLATE, 29 gage Hollowware enameling
4.30[83]	4.10[83]	3.70[4, 11]	SF, LA=4.40[34]	Atlanta=4.25[65] Minnequa=4.15[14]	BARS Carbon steel
4.30[83]	4.10[83]	3.70[4, 11]	SF, S=4.45[62] F=4.40[19] LA=4.40[83]	Atlanta=4.25[65] Minnequa=4.50[14]	Reinforcing‡
				Newark=5.00[69] Putnam=5.10[69] Hartford=5.10[4] Los Angeles=6.00[4]	Cold-finished
4.80[83]	4.70[83]		LA=5.35[83] F=5.35[19]		Alloy, hot-rolled
				Newark=5.75[69] Worcester=[3] Hartford=5.85[4]	Alloy, cold-drawn
		5.55[11]	F=6.80[19]		HI str. low alloy, h.r.
	4.10[83]	3.70[4, 11]	F=4.30[19] S=4.60[62] Geneva=3.70[16]	Claymont=4.15[29] Coatesville=4.15[31] Minnequa=4.50[14]	PLATE Carbon steel
				Harrisburg=5.25[54]	Floor plates
			F=5.70[19] Geneva=5.65[16]	Coatesville=5.25[31] Claymont=4.85[29]	Alloy
		5.65[11]	F=6.25[19]		HI str. low alloy
4.25[83]	4.05[83]	3.85[4,11]	SF=4.20[83] F=4.25[16] LA=4.25[34,43] S=4.30[62]	Geneva 3.85[16] Minnequa 4.10[14]	SHAPES, Structural
		80[11]	F=6.10[19]		HI str. low-alloy
5.40[83]	5.25[83]	4.85[4, 11]	SF, LA=5.80[34]	Atlanta=5.10[65] Worcester=5.15[3] Minnequa=5.10[14]	MANUFACTURERS' WIRE Bright

KEY TO STEEL PRODUCERS

With Principal Offices

1 Carnegie-Illinois Steel Corp., Pittsburgh
2 American Steel & Wire Co., Cleveland
3 Bethlehem Steel Co., Bethlehem
4 Republic Steel Corp., Cleveland
5 Jones & Laughlin Steel Corp., Pittsburgh
6 Youngstown Sheet & Tube Co., Youngstown
7 Armco Steel Corp., Middletown, Ohio
8 Inland Steel Co., Chicago
9 Weirton Steel Co., Weirton, W. Va.
10 National Tube Co., Pittsburgh
11 Tennessee Coal, Iron & R. R. Co., Birmingham
12 Great Lakes Steel Corp., Detroit
13 Sharon Steel Corp., Sharon, Pa.
14 Colorado Fuel & Iron Corp., Denver
15 Wheeling Steel Corp., Wheeling, W. Va.
16 Geneva Steel Co., Salt Lake City
17 Crucible Steel Co. of America, New York
18 Pittsburgh Steel Co., Pittsburgh
19 Kaiser Steel Corp., Oakland, Calif.
20 Portsmouth Div., Detroit Steel Corp., Detroit
21 Lukens Steel Co., Coatesville, Pa.
22 Granite City Steel Co., Granite City, Ill.
23 Wisconsin Steel Co., South Chicago, Ill.
24 Columbia Steel Co., San Francisco
25 Copperweld Steel Co., Glassport, Pa.
26 Alan Wood Steel Co., Conshohocken, Pa.
27 Calif. Cold Rolled Steel Corp., Los Angeles
28 Allegheny Ludlum Steel Corp., Pittsburgh
29 Worth Steel Co., Claymont, Del.
30 Continental Steel Corp., Kokomo, Ind.
31 Rotary Electric Steel Co., Detroit
32 Laclede Steel Co., St. Louis
33 Northwestern Steel & Wire Co., Sterling, Ill
34 Keystone Steel & Wire Co., Peoria, Ill.
35 Central Steel & Wire Co., Harrisburg, Pa.
36 Carpenter Steel Co., Reading, Pa.
37 Eastern Stainless Steel Corp., Baltimore
38 Washington Steel Corp., Washington, Pa.
39 Jessop Steel Co., Washington, Pa.
40 Blair Strip Steel Co., New Castle, Pa.
41 Superior Steel Corp., Carnegie, Pa.
42 Timken Steel & Tube Div., Canton, Ohio
43 Babcock & Wilcox Tube Co., Beaver Falls, Pa
44 Reeves Steel & Mfg. Co., Dover, Ohio
45 John A. Roebling's Sons Co., Trenton, N. J.
46 Simonds Saw & Steel Co., Fitchburg, Mass
47 McLouth Steel Corp., Detroit
48 Cold Metal Products Co., Youngstown
49 Thomas Steel Co., Warren, Ohio
50 Wilson Steel & Wire Co., Chicago
51 Sweet's Steel Co., Williamsport, Pa.
52 Superior Drawn Steel Co., Monaca, Pa.
53 Tremont Nail Co., Wareham, Mass.
54 Firth Sterling Steel & Carbide Corp., McKeesport, Pa.
55 Ingersoll Steel Div., Chicago
56 Phoenix Iron & Steel Co., Phoenixville, Pa.
57 Fitzsimmons Steel Co., Youngstown
58 Stanley Works, New Britain, Conn.
59 Universal-Cyclops Steel Corp., Bridgeville, Pa
60 American Cladmetals Co., Carnegie, Pa.
61 Cuyahoga Steel & Wire Co., Cleveland
62 Bethlehem Pacific Coast Steel Corp., San Francisco
63 Follansbee Steel Corp., Pittsburgh
64 Niles Rolling Mill Co., Niles, Ohio
65 Atlantic Steel Co., Atlanta
66 Acme Steel Co., Chicago
67 Joslyn Mfg. & Supply Co., Chicago
68 Detroit Steel Corp., Detroit
69 Wyckoff Steel Co., Pittsburgh
70 Bliss & Laughlin, Inc., Harvey, Ill.
71 Columbia Steel & Shafting Co., Pittsburgh
72 Cumberland Steel Co., Cumberland, Md.
73 La Salle Steel Co., Chicago
74 Monarch Steel Co., Inc., Hammond, Ind.
75 Empire Steel Co., Mansfield, Ohio
76 Mahoning Valley Steel Co., Niles, Ohio
77 Oliver Iron & Steel Co., Pittsburgh
78 Pittsburgh Screw & Bolt Co., Pittsburgh
79 Standard Forging Corp., Chicago
80 Driver Harris Co., Harrison, N. J.
81 Detroit Tube & Steel Div., Detroit
82 Reliance Div., Eaton Mfg. Co., Massillon, Ohio
83 Sheffield Steel Corp., Kansas City
84 Plymouth Steel Co., Detroit
85 Wickwire Spencer Steel, Buffalo
86 Angell Nail and Chaplet, Cleveland
87 Mid-States Steel & Wire, Crawfordsville, Ind
88 National Supply, Pittsburgh, Pa.
89 Wheatland Tube Co., Wheatland, Pa.
90 Mercer Tube & Mfg. Co., Sharon, Pa.

STAINLESS STEELS

Base prices, in cents per pound, f.o.b. producing point

Product	301	302	303	304	316	321	347	410	416	430
Ingots, rerolling	14.25	15.00	16.50	16.00	24.25	19.75	21.50	12.75	14.75	13.00
Slabs, billets rerolling	18.50	19.75	21.75	20.75	31.75	26.00	28.25	16.50	20.00	16.75
Forg. discs, die blocks, rings	34.00	34.00	36.50	35.50	52.50	40.00	44.50	28.00	28.50	28.50
Billets, forging	26.25	26.25	28.25	27.50	41.00	31.00	34.75	21.50	22.00	22.00
Bars, wires, structurals	31.25	31.25	33.75	32.75	48.75	36.75	41.25	25.75	26.25	26.25
Plates	33.00	33.00	35.00	35.00	51.50	40.50	45.00	27.00	27.50	27.50
Sheets	41.00	41.00	43.00	43.00	56.50	49.00	53.50	36.50	37.00	39.00
Strip, hot-rolled	26.50	28.00	32.25	30.00	48.25	36.75	41.00	23.50	30.25	24.00
Strip, cold-rolled	34.00	36.50	40.00	38.50	58.50	48.00	52.00	30.50	37.00	31.00

STAINLESS STEEL PRODUCING POINTS—*Sheets:* Midland, Pa., 17; Brackenridge, Pa., 28; Butler, Pa., 7; McKeesport, Pa., 1; Washington, Pa., 38 (type 316 add 5¢), 39; Baltimore, 37; Middletown, Ohio, 7; Massillon, Ohio, 4; Gary, 1; Bridgeville, Pa., 59; New Castle, Ind., 55; Ft. Wayne, Ind., 67; Lockport, N. Y., 46.

Strip: Midland, Pa., 17; Cleveland, 2; Carnegie, Pa., 41; McKeesport, Pa., 54; Reading, Pa., 36; Washington, Pa., 38 (type 316 add 5¢); W. Leechburg, Pa., 28; Bridgeville, Pa., 59; Detroit, 47; Massillon, Canton, Ohio, 4; Middletown, Ohio, 7; Harrison, N. J., 80; Youngstown, 48; Lockport, N. Y., 46; New Britain, Conn., 58; Sharon, Pa., 13; Butler, Pa., 7.

Bars: Baltimore, 7; Duquesne, Pa. 1; Munhall, Pa., 1; Reading, Pa., 36; Titusville, Pa., 59; Washington, Pa., 39; McKeesport, Pa., 1, 54; Bridgeville, Pa., 59; Dunkirk, N. Y., 28; Massillon, Ohio, 4; Chicago, 1; Syracuse, N. Y., 17; Watervliet, N. Y., 28; Waukegan, Ill., 2; Lockport, N. Y., 46; Canton, Ohio, 42; Ft. Wayne, Ind., 67.

Wire: Waukegan, Ill., 2; Massillon, Ohio, 4; McKeesport, Pa., 54; Bridgeport, Conn., 44; Ft. Wayne, Ind., 67; Trenton, N. J., 45; Harrison, N. J., 80; Baltimore, 7; Dunkirk, 28.

Structurals: Baltimore, 7; Massillon, Ohio, 4; Chicago, 1, 67; Watervliet, N. Y., 28; Bridgeport, Conn., 44.

Plates: Brackenridge, Pa., 28 (type 416 add ½¢); Butler, Pa., 7; Chicago, 1; Munhall, Pa., 1; Midland, Pa., 17; New Castle, Ind., 55; Lockport, N. Y., 46; Middletown, 7; Washington, Pa., 39; Cleveland, Massillon, 4.

Forged discs, die blocks, rings: Pittsburgh, 1, 17; Syracuse, 17; Ferndale, Mich., 28.

Forging billets: Midland, Pa., 17; Baltimore, 7; Washington, Pa., 39; McKeesport, 54; Massillon, Canton, Ohio, 4; Watervliet, 28; Pittsburgh, Chicago, 1.

MERCHANT WIRE PRODUCTS

F.o.b. Mill	Standard & Coated Nails Base Col.	Woven Wire Fence 9-15½ ga. Base Col.	Fence Posts Base Col.	Single Loop Bale Ties Base Col.	Twisted Barbless Wire Base Col.	Gal. Barbed Wire Base Col.	Merch. Wire Annld. ¢/lb	Merch. Wire Gal. ¢/lb
Alabama City-4	118	126	....	123	....	136	5.70	5.95
Aliquippa, Pa.-5	118	132	....	....	136	140	5.70	6.15
Atlanta-65	113	133	....	126	126	143	5.95	6.40
Bartonville-34	118	130	140	123	143	143	5.95	6.15
Buffalo-85	....	....	....	....	....	....	....	....
Chicago-4	118	126	121	123	....	136	....	....
Cleveland-86	....	....	....	....	....	....	....	....
Cleveland-2	....	....	....	....	....	....	5.70	5.85
Crawfordsville-87	....	130	....	....	....	....	....	....
Donora, Pa.-2	118	130	....	123	....	140	5.70	5.85
Duluth-2	118	130	....	123	....	140	5.70	5.85
Fairfield, Ala.-11	118	126	....	123	....	136	5.70	5.95
Houston-83	126	138	....	....	....	148	6.10	6.55
Johnstown, Pa-3	118	130	....	....	140	....	5.70	6.15
Joliet, Ill.-2	118	130	....	123	....	140	5.70	5.85
Kokomo, Ind.-30	120	128	....	125	138	138	5.80	6.05
Los Angeles-62	....	....	....	....	....	....	....	....
Kansas City-83	130	130	142	135	....	152	6.30	6.75
Minnequa-14	123	138	130	126	146	146	5.95	6.45
Monessen-18	124	135	....	....	....	145	5.95	6.40
Moline, Ill.-4	....	....	121	....	....	....	....	....
Palmer-85	....	....	....	....	....	....	....	....
Pittsburg, Cal.-24	137	149	....	147	156	....	6.65	6.80
Portsmouth-20	124	137	....	....	147	147	6.10	6.60
Rankin, Pa.-2	118	130	....	....	....	140	5.70	5.85
San Francisco-14	....	....	....	....	....	....	....	....
So.Chicago,Ill.-4	118	126	116	123	....	136	5.70	5.95
So. San Francisco-14	....	....	....	147	....	160	6.65	7.10
Sparrows Pt.-3	120	....	....	125	142	132	5.80	6.25
Sterling, Ill.-33	118	130	140	123	140	140	....	....
Struthers, Ohio-6	....	....	....	....	....	....	....	....
Torrance, Cal.-24	138	....	....	....	....	....	6.65	....
Worcester-2	124	....	....	....	....	....	6.00	6.15
Williamsport, Pa.-81	....	....	....	....	....	....	....	....

Cut Nails, carloads, base, $6.75 per 100 lb. (less 20¢ to jobbers) at Conshohocken, Pa., (28), Wareham, Mass. (53) Wheeling, W. Va., (15).

CAST IRON WATER PIPE

Per net ton

6 to 24-in., del'd Chicago . $105.30 to $108.80
6 to 24-in., del'd N. Y. . . . 104.50 to 105.50
6 to 24-in., Birmingham . 91.50 to 96.00
6-in. and larger, f.o.b. cars, San Francisco, Los Angeles, for all rail shipment; rail and water shipment less . . . . . $108.50 to $113.00

Class "A" and gas pipe, $5 extra; 4-in. pipe is $5 a ton above 6-in.

RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb.	No. 1 Std. Rails	Light Rails	Joint Bars	Track Spikes	Axles	Screw Spikes	Tie Plates	Track Bolts Untreated
Bessemer-1	3.60	4.00	4.70	....	....	....	....	....
Chicago-4	....	....	....	6.15	....	....	....	....
Ensley-11	3.60	4.00	....	....	....	....	....	....
Fairfield-11	....	4.00	4.40	....	....	8.60	4.50	....
Gary-1	3.60	4.00	....	....	....	....	4.50	....
Ind. Harbor-8	3.60	....	4.70	6.15	5.25	8.60	4.50	....
Johnstown-3	....	4.00	....	....	5.60	8.60	....	....
Joliet-1	....	4.00	4.70	....	....	....	....	....
Kansas City-83	....	....	....	6.40	....	....	....	....
Lackawanna-3	3.60	4.00	4.70	....	....	8.60	4.50	....
Lebanon-3	....	....	....	6.15	....	....	....	9.80
Minnequa-14	3.60	4.50	4.70	6.15	....	8.60	4.50	9.80
Pittsburgh-77	....	....	....	....	....	9.35	....	9.80
Pittsburgh-78	....	....	....	....	....	....	....	9.80
Pittsburgh-5	....	....	....	6.15	....	....	....	....
Pittsburg-24	....	....	....	....	....	....	4.65	....
Seattle-62	....	....	....	6.10	....	....	4.35	....
Steelton-3	3.60	....	4.70	....	....	....	4.50	....
Struthers-6	....	....	....	5.60	....	....	....	....
Torrance-24	....	....	....	....	....	....	4.65	....
Youngstown-4	....	....	....	6.15	....	....	....	....

Track Bolts, heat treated, to railroads, 9.85¢ per lb.

BOILER TUBES

Seamless steel, electric welded commercial boiler tubes, locomotive tubes, minimum wall, per 100 ft at mill, c.l. lots, cut lengths 10 to 24 ft.

OD in.	gage BWG	Seamless H.R.	Seamless C.D.	Electric Weld H.R.	Electric Weld C.D.
2	13	$22.67	$26.66	$21.99	$25.86
2½	12	30.48	35.84	29.57	34.76
3	12	33.90	39.90	32.89	38.80
3½	11	42.37	49.89	41.10	48.39
4	10	52.60	61.88	51.03	60.02

Pittsburgh Steel add, H-R: 2 in., 62¢; 2½ in., 84¢; 3 in., 92¢; 3½ in., $1.17; 4 in., $1.45. Add, C-R: 2 in., 74¢; 2½ in., 99¢; 3 in., $1.10; 3½ in., $1.37; 4 in., $1.70.

FLUORSPAR

Washed gravel fluorspar, f.o.b. cars, Rosiclare, Ill. Base price, per ton net: Effective CaF, content:

70% or more $41.00
60% or less 38.00

PIPE AND TUBING

Base discounts, f.o.b. mills. Base price about $200 per net ton.

	BUTTWELD ½ In. Blk.	½ In. Gal.	¾ In. Blk.	¾ In. Gal.	1 In. Blk.	1 In. Gal.	1¼ In. Blk.	1¼ In. Gal.	1½ In. Blk.	1½ In. Gal.	2 In. Blk.	2 In. Gal.	2½-3 In. Blk.	2½-3 In. Gal.	SEAMLESS 2 In. Blk.	2 In. Gal.	2½-3 In. Blk.	2½-3 In. Gal.	3½-4 In. Blk.	3½-4 In. Gal.
STANDARD T. & C.																				
Bethlehem-3	34.0	12.0	37.0	16.0	39.5	19.5	40.0	20.0	40.5	21.0	41.0	21.5	41.5	22.0	....	....	....	....	....	....
Cleveland-4	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	....	....	....	....	....	....
Oakland-19	25.0	3.0	28.0	7.0	30.5	10.5	31.0	21.0	31.5	22.0	32.0	12.5	32.5	13.0	....	....	....	....	....	....
Pittsburgh-5	36.0	14.0	39.0	17.0	41.5	19.5	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.5	29.5	8.0	32.5	11.5	34.5	13.5
Pittsburgh-10	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	29.5	9.5	32.5	12.5	34.5	14.5
St. Louis-32	35.0	13.0	38.0	17.0	40.5	20.5	41.0	21.0	41.5	22.0	42.0	22.5	42.5	23.0	....	....	....	....	....	....
Sharon-90	36.0	13.0	39.0	17.0	41.5	20.0	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.0	....	....	....	....	....	....
Toledo-88	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	29.5	....	32.5	....	34.5	....
Wheeling-15	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	....	....	....	....	....	....
Wheatland-89	36.0	14.0	39.0	17.0	41.5	19.5	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.5	....	....	....	....	....	....
Youngstown-6	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	29.5	9.5	32.5	12.5	34.5	14.5
EXTRA STRONG, PLAIN ENDS																				
Bethlehem-3	33.5	13.0	37.5	17.0	39.5	20.5	40.0	21.0	40.5	22.0	41.0	22.5	41.5	23.0	....	....	....	....	....	....
Cleveland-4	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	....	....	....	....	....	....
Oakland-19	24.5	4.0	28.5	18.0	30.5	11.5	31.0	12.0	31.5	13.0	32.0	13.5	32.5	14.0	....	....	....	....	....	....
Pittsburgh	35.5	13.5	39.5	17.5	41.5	19.5	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.5	29.0	7.5	33.0	12.0	36.0	15.5
Pittsburgh-10	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	29.0	10.0	33.0	14.0	36.5	17.5
St. Louis-32	34.5	14.0	38.5	18.0	40.5	21.5	41.0	22.0	41.5	23.0	42.0	23.5	42.5	24.0	....	....	....	....	....	....
Sharon-90	35.5	14.0	39.5	18.0	41.5	21.0	42.0	21.5	42.5	22.0	43.0	22.5	43.5	23.0	....	....	....	....	....	....
Toledo-88	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	29.0	....	33.0	....	36.5	....
Wheeling-15	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	....	....	....	....	....	....
Wheatland-89	35.5	13.5	39.5	17.5	41.5	19.5	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.5	....	....	....	....	....	....
Youngstown-6	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	29.0	10.0	33.0	14.0	36.5	17.5

Galvanized discounts based on zinc at 17¢ per lb, East St. Louis. For each 1¢ change in zinc, discounts vary as follows: ½ in., ¾ in., and 1 in., 1 pt.; 1¼ in., 1½ in., 2 in., ¾ pt.; 2½ in., 3 in., ½ pt. Calculate discounts on even cents per lb of zinc, i.e., if zinc is 16.51¢ to 17.50¢ per lb, use 17¢. Jones & Laughlin discounts apply only when zinc price changes 1¢. Threads only, buttweld and seamless, 1 pt. higher discount. Plain ends, buttweld and seamless, 3 in. and under, 3½ pts. higher discount. Buttweld jobbers' discount, 5 pct.

WAREHOUSE PRICES

Base prices, f.o.b. warehouse, dollars per 100 lb. (Metropolitan area delivery, add 20¢ to base price except Birmingham, San Francisco, Cincinnati, New Orleans, St. Paul (*), add 15¢; Philadelphia, add 25¢; Memphis, add 10¢; New York, add 30¢).

CITIES	SHEETS			STRIP		PLATES	SHAPES	BARS		ALLOY BARS			
	Hot-Rolled	Cold-Rolled (15 gage)	Galvanized (10 gage)	Hot-Rolled	Cold-Rolled		Standard Structural	Hot-Rolled	Cold-Finished	Hot-Rolled, A 4615 As-rolled	Hot-Rolled, A 4140 Ann.	Cold-Drawn, A 4615 As-rolled	Cold-Drawn, A 4140 Ann.
Baltimore	5.60	6.84	7.49[2]–8.07	6.04	....	5.80	6.14	6.04	6.84–6.89	10.24	10.54	11.89	12.19
Birmingham*	5.60	6.40	6.75	5.55	....	5.95	5.70	5.55	....	....	....	....	....
Boston	6.20	7.00–7.25	7.74–8.29	6.15	8.50[16]	6.48–6.78	6.20	6.05	6.79–6.84	10.25	10.55	11.90–12.00	12.20–12.30
Buffalo	5.60	6.40	7.74–8.09	5.88	....	6.05	5.80	5.60	6.40–6.45	10.15–10.85	10.45	11.80	11.95–12.10
Chicago	5.60	6.40	7.75	5.55	....	5.80	5.70	5.55	6.30	9.80	10.10	11.45	11.75
Cincinnati*	5.87	6.44	7.39	5.80	....	6.19	6.09	5.80	6.61	10.15	10.45	11.80	12.10
Cleveland	5.60	6.40	8.10	5.69	6.90	5.92	5.82	5.57	6.40	9.91	10.21	11.56	11.86
Detroit	5.78	6.53	7.89	5.94	....	5.99	6.09	5.84	6.56	10.11	10.41	11.76	12.06
Houston	7.00	8.25	....	....	....	6.85	6.50	6.65	9.35	10.35	11.25	....	12.75
Indianapolis, Del'd	6.00	6.80	8.15	5.95	....	6.20	6.10	5.95	6.80	....	....	....	....
Kansas City	6.00	6.80	7.45	6.15	7.50	6.40	6.30	6.15	7.00	10.40	10.70	12.05	12.35
Los Angeles	6.35	7.90	8.85	6.40	8.70[16]	6.40	6.35	6.35	7.55	11.30	11.30	13.20	13.50
Memphis*	6.33–6.38	7.08–7.18	....	6.33–6.38	....	6.43–8.02	6.33–6.48	6.08–6.33	7.16–7.32	....	....	....	....
Milwaukee	5.74	6.54	7.89	5.69–6.59	....	5.94	4.84	5.69	6.44–6.54	9.94	10.24	11.59	11.89
New Orleans*	5.70	6.95	....	5.75	7.25	5.95	5.75	5.75	7.30	....	....	....	....
New York*	5.67–5.97	7.19[22] 7.24[1]	8.14[2]	6.29–6.89	8.63[16]	6.23–6.53	6.10	6.12	6.99	10.05–10.15	10.35–10.45	11.70–11.83	12.10–12.20
Norfolk	6.50[13]	....	....	....	....	6.50[13]	6.60[13]	6.55[13]	....	....	....	....	....
Philadelphia*	5.90	6.55	8.00	6.10	....	6.05	5.90	6.05	6.61	9.90	10.20	....	....
Pittsburgh	5.60	6.40	7.75	5.65–5.95	....	5.75	5.70	5.55	6.15	9.80	10.10	11.45	11.75
Portland	6.60	....	8.50	7.30	....	6.80	6.95	6.90	....	....	....	....	....
Salt Lake City	7.95	....	9.70	8.70	....	8.05	8.30	8.65	9.00	....	....	....	....
San Francisco*	6.65	8.05[2]	8.55–8.90[2]	6.60	....	6.50	6.45	6.45	8.20	11.30	11.30	13.20	13.20–13.50
Seattle	7.05	8.80	9.20	9.05	....	6.75	6.65	6.75	9.05	....	....	....	....
St. Louis	5.80–5.85	6.65	8.00	5.80	8.00[16]–8.28	6.13	6.03	5.80	6.55–6.65	10.05	10.35	11.70	12.00
St. Paul*	6.16	6.96	8.31	6.11	....	6.38	6.25	6.11	6.96	10.36	10.66	12.01	12.31

BASE QUANTITIES *(Standard unless otherwise keyed on prices.)*
Hot-rolled sheets and strip, hot rolled bars and bar shapes, structural shapes, plate, galvanized sheets and cold-rolled sheets; 2000 to 9999 lb. Cold-finished bars; 2000 lb or over. Alloy bars; 1000 to 1999 lb. Cold-rolled strip; 2000 to 9999 lb.

All HR products may be combined to determine quantity bracket. All galvanized sheets may be combined to determine quantity bracket. CR sheets may not be combined with each other or with galv. sheets to determine quantity bracket.

Exceptions:
(1) 400 to 1499 lb; (2) 450 to 1499 lb; (3) 300 to 4999 lb; (4) 300 to 9999 lb; (5) 2000 to 5999 lb; (6) 1000 lb and over; (7) 500 to 1499 lb; (8) 400 lb and over; (9) 400 to 9999 lb; (10) 500 to 9999 lb; (11) 400 to 3999 lb; (12) 450 to 3749 lb; (13) 400 to 1999 lb; (14) 1500 lb and over; (15) 1000 to 9999 lb; (16) 6000 lb and over; (17) up to 1999 lb; (18) 1000 to 4999 lb; (19) 1500 to 3499 lb; (20) CR sheets may be combined for quantity; (21) 3 to 24 bundles; (22) 1500 to 9999 lb.

PIG IRON PRICES

Dollars per gross ton. Delivered prices do not include 3 pct tax on freight.

PRODUCING POINT PRICES

Producing Point	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.
Bethlehem	54.00	54.50	55.00	55.50	.....
Birmingham	48.38	48.88	.....	.....	.....
Buffalo	52.00	52.50	53.00	.....	.....
Chicago	52.00	52.50	52.50	53.00	.....
Cleveland	52.00	52.50	52.50	53.00	57.00
Daingerfield, Tex.	48.00	48.50	48.50	.....	.....
Duluth	52.00	52.50	52.50	53.00	.....
Erie	52.00	52.50	52.50	53.00	.....
Everett	....	53.25	53.75	.....	.....
Fontana	58.00	58.50	.....	.....	.....
Granite City	53.90	54.40	54.90	.....	.....
Hubbard	52.00	52.50	52.50	.....	.....
Ironton, Utah	52.00	52.50	.....	.....	.....
Pittsburgh	52.00*	.....	.....	53.00	.....
Neville Island	52.00	52.50	52.50	53.00	.....
Geneva, Utah	52.00	52.50	.....	.....	.....
Sharpsville	52.00	52.50	52.50	53.00	.....
Steelton	54.00	54.50	55.00	55.50	60.00
Swedeland	56.00	56.50	57.00	57.50	.....
Toledo	52.00	52.50	52.50	53.00	.....
Troy, N. Y.	54.00	54.50	55.00	.....	60.00
Youngstown	52.00	52.50	52.50	53.00	.....

DELIVERED PRICES (BASE GRADES)

Consuming Point	Producing Point	Rail Freight Rate	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos
Boston	Everett	$.80-.90	.....	53.85–54.05	54.55–54.75	.....	.....
Boston	Steelton	6.90	.....	.....	.....	.....	66.90
Brooklyn	Bethlehem	4.29	.....	58.79	59.29	59.29	.....
Cincinnati	Birmingham	6.70	55.08	55.58	.....	.....	.....
Jersey City	Bethlehem	2.63	.....	57.13	57.63	58.13	.....
Los Angeles	Geneva-Ironton	7.70	59.70	60.20	.....	.....	.....
Los Angeles	Fontana	.....	59.70	60.20	.....	.....	.....
Mansfield	Cleveland, Toledo	3.33	55.33	55.83	56.33	56.33	60.33
Philadelphia	Bethlehem	2.39	56.39	56.89	57.39	57.89	.....
Philadelphia	Swedeland	1.44	57.44	57.94	58.44	58.94	.....
Philadelphia	Steelton	3.09	57.09	57.59	58.09	58.59	63.09
Rochester	Buffalo	2.63	54.63	55.13	55.63	.....	.....
San Francisco	Geneva-Ironton	7.70	59.70	60.20	.....	.....	.....
San Francisco	Fontana	.....	59.70	60.20	.....	.....	.....
Seattle	Geneva-Ironton	7.70	59.70	60.20	.....	.....	.....
Seattle	Fontana	.....	59.70	60.20	.....	.....	.....
St. Louis	Granite City	0.75 Arb.	51.65	52.15	52.65	.....	.....
Syracuse	Buffalo	3.58	55.58	56.08	56.58	.....	.....

* *Monessen, $54.00.*

Producing points prices are subject to switching charges; silicon differential (not to exceed 50c per ton for each 0.25 pct silicon content in excess of base grade which is 1.75 to 2.25 pct for foundry iron); phosphorus differentials, a reduction of 38c per ton for phosphorus content of 0.70 pct and over; manganese differentials, a charge not to exceed 50c per ton for each 0.50 pct manganese content in excess of 1.00 pct, $2 per ton extra may be charged for 0.5 to 0.75 pct nickel content and $1 per ton extra for each additional 0.25 pct nickel.

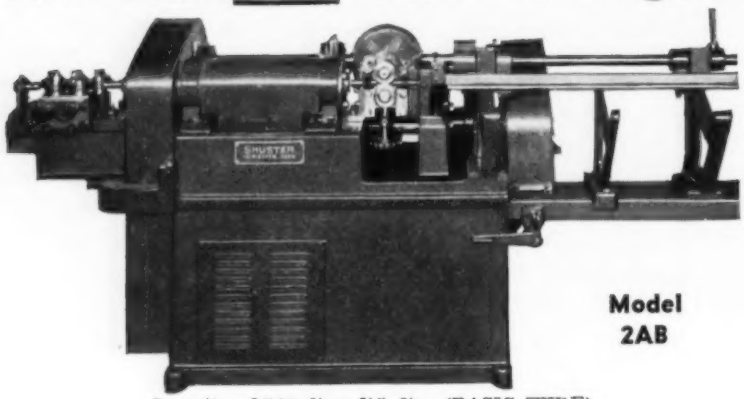
Silvery iron (blast furnace) silicon 6.01 to 6.50 pct C/L per g.t., f.o.b. Jackson, Ohio—$62.50; f.o.b. Buffalo, $63.75. Add $1.50 per ton for each additional 0.50 pct Si up to 17 pct. Add 50c per ton for each 0.50 pct Mn over 1.00 pct. Add $1.00 per ton for 0.75 pct or more P. Bessemer ferrosilicon prices are $1.00 per ton above silvery iron prices of comparable analysis.

Charcoal pig iron base price for low phosphorus $62.00 per gross ton, f.o.b. Lyle, Tenn. Delivered Chicago, $70.56. High phosphorus charcoal pig iron is not being produced.

This New, Economical

SHUSTER

Cuts Costs AND Accurate Lengths!



Model 2AB

Capacity: 3/16" dia.—⅜" dia. (BASIC WIRE)

Automatic

WIRE STRAIGHTENING AND CUTTING MACHINE

This new "SHUSTER"—with its five gear-driven straightening rolls—handles even badly twisted wire with ease. Square and rectangular as well as round wire may be straightened and cut to exact lengths. Other "Shuster" features that assure high speed, quality production are: almost continuous wire travel, rapid cut-off, V-belt motor drive, ball and roller bearings, and extreme rigidity throughout. Write for details.

Mfd. by METTLER MACHINE TOOL, INC.

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Representatives in all principal cities and foreign countries.

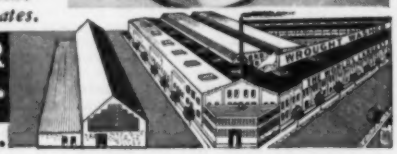
Since 1887

MILWAUKEE WROT WASHERS



Better WASHERS ... Competitively Priced

Large volume production, the most advanced methods and facilities, plus more than 60 years of continuous experience in the manufacture of Washers, are factors that enable us to offer you top quality washers and stampings at competitive costs. Over 22,000 sets of dies for making Washers of every type (Standard and Special), from every type of material, for every purpose, in any finish. STAMPINGS of all descriptions; Blanking, Forming, Drawing. *Submit your blueprints and quantity requirements for estimates.*



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The World's Largest Producer of Washers

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BOLTS, NUTS, RIVETS, SCREWS

Consumer Prices

(Base discount, f.o.b. mill, Pittsburgh, Cleveland, Birmingham or Chicago)

Machine and Carriage Bolts

	Pct Off List Less Case	C.
½ in. & smaller x 6 in. & shorter	15	28½
9/16 in. & ⅝ in. x 6 in. & shorter	18½	30½
¾ in. & larger x 6 in. & shorter	17½	29½
All diam. longer than 6 in.	14	27½
Lag, all diam. x 6 in. & shorter	23	35
Lag, all diam. longer than 6 in.	21	33
Plow bolts	34	...

Nuts, Hot Pressed, Cold Punched—Sq

Pct Off List

	Less Keg (Reg.)	K.	Less Keg. (Hvy.)	K
½ in. & smaller.	15	28½	15	28½
9/16 in. & ⅝ in..	12	25	6½	21
¾ in. to 1½ in. inclusive	9	23	1	16½
1⅝ in. & larger.	7½	22	1	16½

Nuts, Hot Pressed—Hexagon

½ in. & smaller.	26	37	22	34
9/16 in. & ⅝ in..	16½	29½	6½	21
¾ in. to 1½ in. inclusive	12	25	2	17½
1⅝ in. & larger.	8½	23	2	17½

Nuts, Cold Punched—Hexagon

½ in. & smaller.	26	37	22	34
9/16 in. & ⅝ in..	23	35	17½	30½
¾ in. to 1½ in. inclusive	19½	31½	13	25
1⅝ in. & larger.	12	25	6½	21

Nuts, Semi-Finished—Hexagon

	Reg.		Hvy.	
½ in. & smaller.	35	45	28½	39½
9/16 in. & ⅝ in..	29½	40½	22	34
¾ in. to 1½ in. inclusive	24	36	15	28½
1⅝ in. & larger.	13	26	8½	23
	Light			
7/16 in. & smaller	35	45		
½ in. thru ⅝ in.	28½	39½		
¾ in. to 1½ in. inclusive	26	37		

Stove Bolts

	Pct Off List
Packaged, steel, plain finished	56—10
Packaged, plated finish	41—10
Bulk, plain finish**	67*

*Discounts apply to bulk shipments in not less than 15,000 pieces of a size and kind where length is 3-in. and shorter; 5000 pieces for lengths longer than 3-in. For lesser quantities, packaged price applies.

**Zinc, Parkerized, cadmium or nickel plated finishes add 6¢ per lb net. For black oil finish, add 2¢ per lb net.

Rivets

	Base per 100 lb
½ in. & larger	$7.85
	Pct Off List
7/16 in. & smaller	46

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham, Lebanon, Pa.

Cap and Set Screws

(In bulk)	Pct Off List
Hexagon head cap screws, coarse or fine thread, ¼ in. thru ⅝ in. x 6 in., SAE 1020, bright	54
⅝ in. thru 1 in. up to & including 6 in.	48
¼ in. thru ⅝ in. x 6 in. & shorter high C double heat treat	46
⅝ in. thru 1 in. up to & including 6 in.	42
Milled studs	35
Flat head cap screws, listed sizes	16
Fillister head cap, listed sizes	34
Set screws, sq head, cup point, 1 in. diam. and smaller x 6 in. & shorter	53

LAKE SUPERIOR ORES

(51.50% Fe; natural content, delivered lower lake ports)

	Per gross ton
Old range, bessemer	$8.70
Old range, nonbessemer	8.55
Mesabi, bessemer	8.45
Mesabi, nonbessemer	8.30
High phosphorus	8.30

After adjustments for analyses, prices will be increased or decreased as the case may be for increases or decreases after Dec. 2, 1950, in lake vessel rates, upper lake rail freights, dock handling charges and taxes thereon.

ELECTRODES

Cents per lb, f.o.b. plant, threaded electrodes with nipples, unboxed

Diam. in in.	Length in in.	Cents Per lb
	GRAPHITE	
17, 18, 20	60, 72	17.00¢
8 to 16	48, 60, 72	17.00¢
7	48, 60	18.64¢
6	48, 60	19.95¢
4, 5	40	20.48¢
3	40	21.53¢
2½	24, 30	22.05¢
2	24, 30	24.15¢
	CARBON	
40	100, 110	7.65¢
35	65, 110	7.65¢
30	65, 84, 110	7.65¢
24	72 to 104	7.65¢
20	84, 90	7.65¢
17	60, 72	7.65¢
14	60, 72	8.16¢
10, 12	60	8.42¢
8	60	8.67¢

CLAD STEEL

Base prices, cents per pound, f.o.b. mill

Stainless-carbon	Plate	Sheet
No. 304, 20 pct,		
Coatesville, Pa. (21)	*29.5	
Washgtn, Pa. (39)	*29.5	
Claymont, Del. (29)	*28.00	
Conshohocken, Pa. (26)		*24.00
New Castle, Ind. (55)	*26.50	*25.50
Nickel-carbon		
10 pct. Coatesville (21)	32.5	
Inconel-carbon		
10 pct Coatesville (21)	40.5	
Monel-carbon		
10 pct Coatesville (21)	33.5	
No. 302 Stainless-copper-stainless, Carnegie, Pa. (60)		77.00
Aluminized steel sheets, hot dip, Butler, Pa. (7)		7.75

* Includes annealing and pickling, or sandblasting.

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	$1.10
18	4	1	—	5	$1.72
18	4	2	—	—	$1.245
1.5	4	1.5	8	—	78.5¢
6	4	2	6	—	84¢

High-carbon chromium	63.5¢
Oil hardened manganese	35¢
Special carbon	32.5¢
Extra carbon	27¢
Regular carbon	23¢

Warehouse prices on and east of Mississippi are 3¢ per lb higher. West of Mississippi, 5¢ higher.

ELECTRICAL SHEETS

22 gage, HR cut lengths, f.o.b. mill

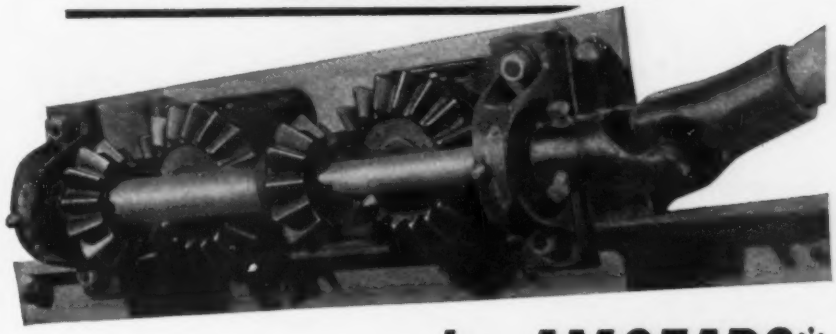
	Cents per lb.
Armature	*6.75
Electrical	*7.25
Motor	*8.50
Dynamo	9.30
Transformer 72	9.85
Transformer 65	10.40
Transformer 58	11.10
Transformer 52	11.90

PRODUCING POINTS—Beech Bottom, W. Va., 15; Brackenridge, Pa., 28; Follansbee, W. Va., 63; Granite City, Ill., 22*, add 70¢; Indiana Harbor, Ind., 3; Mansfield, Ohio, 75; Niles, Ohio, 64, add 30¢; Vandergrift, Pa., 1; Warren, Ohio, 4; Zanesville, Ohio, 7.

COKE

Furnace, beehive (f.o.b. oven)	Net Ton
Connellsville, Pa.	$14.00 to $14.50
Foundry, beehive (f.o.b. oven)	
Connellsville, Pa.	$17.00 to $17.50
Foundry, oven coke	
Buffalo, del'd	$25.35
Chicago, f.o.b.	21.00
Detroit, f.o.b.	23.00
New England, del'd	24.80
Seaboard, N. J., f.o.b.	22.00
Philadelphia, f.o.b.	22.70
Swedeland, Pa., f.o.b.	22.60
Plainesville, Ohio, f.o.b.	24.00
Erie, Pa., f.o.b.	23.50
Cleveland, del'd	25.72
Cincinnati, del'd	25.06
St. Paul, f.o.b.	21.00
St. Louis, f.o.b.	24.90
Birmingham, del'd	20.79

Gear Teeth FORGED!



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for cutting extremely hard materials, including stainless steel

PORTER CARBIDE EDGED CUTTER

Another important Porter development for cutting extra hard materials, such as stainless steel rods, wires, pins, etc. Tough carbide edges are firmly brazed to cutting jaws. Stands up under the toughest usage! Pays for itself many times over. #3CE cuts up to 5/16" dia. #4CE cuts up to 1/2" dia.



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PORTER HOT METAL CUTTER

An ideal tool for steel mills and fabricating plants. Made of special hot work steel and special heat-treated jaws, for long life under continuous heavy duty with no loss to cutting edge temper.

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KRANE KAR swings load to either side

KRANE KAR is a lively swing-boom mobile crane, gas or diesel operated, of compact dimensions, short turning radius. It transports any load it can lift. Put it to work in any part of your plant, yard, or stores; it will speed up production, cut down handling costs. Available for service 24 hours a day, every day.

9 to 37 ft. booms or adjustable telescopic booms. Electric magnet, clam-shell bucket, and other accessories available. Write for Bulletin No. 79.

THE ORIGINAL SWING-BOOM MOBILE CRANE WITH FRONT-WHEEL DRIVE AND REAR-WHEEL STEER
1½, 2½, 5, AND 10 TON CAPACITIES
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C-R SPRING STEEL

Base per pound f.o.b. mill

0.26 to 0.40 carbon	5.35¢
0.41 to 0.60 carbon	6.80¢
0.61 to 0.80 carbon	7.40¢
0.81 to 1.05 carbon	9.35¢
1.06 to 1.35 carbon	11.65¢

Worcester, add 0.30¢; Sharon, Carnegie, New Castle, add 0.35¢; Detroit, 0.26 to 0.40 carb., add 25¢; other grades add 15¢. New Haven, 0.26 to 0.40 carb., add 50¢; other grades add 5¢.

REFRACTORIES

Fire Clay Brick	(*F.o.b. works*) *Carloads, Per* 1000
First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add $5)	$94.60
No. 1 Ohio	88.00
Sec. quality, Pa., Md., Ky., Mo., Ill.	88.00
No. 2 Ohio	79.20
Ground fire clay, net ton, bulk (except Salina, Pa., add $1.50)	13.75

Silica Brick	
Mt. Union, Pa., Ensley, Ala.	$94.00
Childs, Pa.	99.00
Hays, Pa.	100.10
Chicago District	104.50
Western Utah and Calif.	111.10
Super Duty, Hays, Pa., Athens, Tex., Chicago	111.10
Silica cement, net ton, bulk, Eastern (except Hays, Pa.)	16.50
Silica cement, net ton, bulk, Hays, Pa.	18.70
Silica cement, net ton, bulk, Ensley, Ala.	17.60
Silica cement, net ton, bulk, Chicago District	17.60
Silica cement, net ton, bulk, Utah and Calif.	24.75

Chrome Brick	*Per Net Ton*
Standard chemically bonded, Balt., Chester	$82.00

Magnesite Brick	
Standard, Baltimore	$104.00
Chemically bonded, Baltimore	93.00

Grain Magnesite	*St. %-in. grains*
Domestic, f.o.b. Baltimore, in bulk fines removed	$62.70
Domestic, f.o.b. Chewelah, Wash., in bulk	36.30
in sacks	41.80

Dead Burned Dolomite

F.o.b. producing points in Pennsylvania, West Virginia and Ohio, per net ton, bulk Midwest, add 10¢; Missouri Valley, add 20¢....$13.00

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.

Swedish sponge iron c.i.f. New York, ocean bags	7.4¢ to 9.0¢
Canadian sponge iron, del'd, in East	10.00¢
Domestic sponge iron, 98+% Fe, carload lots	9.0¢ to 15.0¢
Electrolytic iron, annealed, 99.5+% Fe	36.0¢ to 39.5¢
Electrolytic iron unannealed, minus 325 mesh, 99+% Fe	48.5¢
Hydrogen reduced iron, minus 300 mesh, 98+% Fe	63.0¢ to 89.0¢
Carbonyl iron, size 5 to 10 micron, 98%, 99.8+% Fe	70.0¢ to $1.31
Aluminum	29.00¢
Brass, 10 ton lots	30.00¢ to 33.25¢
Copper, electrolytic	10.25¢ plus metal value
Copper, reduced	10.00¢ plus metal value
Cadmium 100-199 lb.	95¢ plus metal value
Chromium, electrolytic, 99% min., and quantity	$3.50
Lead	6.5¢ plus metal value
Manganese	52.00¢
Molybdenum, 99%	$2.61
Nickel, unannealed	75.5¢
Nickel, annealed	$1.5¢
Nickel, spherical, unannealed	78.5¢
Silicon	34.00¢
Solder powder	6.5¢ to 8.5¢ plus met. value
Stainless steel, 302	75.00¢
Tin	11.00¢ plus metal value
Tungsten, 99%	$4.15
Zinc, 10 ton lots	20.50¢ to 23.85¢

Ferrochrome

Contract prices, cents per pound, contained Cr, lump size, bulk, in carloads, delivered. (65-72% Cr, 2% max. Si.)

0.06% C	30.50	0.20% C	29.50
0.10% C	30.00	0.50% C	29.25
0.15% C	29.75	1.00% C	29.00
2.00% C			28.75
65-69% Cr, 4-9% C			22.00
62-66% Cr, 4-6% C, 6-9% Si.			22.85

High-Nitrogen Ferrochrome

Low-carbon type: 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 5¢ for each additional 0.25% N.

S. M. Ferrochrome

Contract price, cents per pound, chromium contained, lump size, delivered.

High carbon type: 60-65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.

Carloads	21.60
Ton lots	23.75
Less ton lots	25.35

Low carbon type: 62-66% Cr, 4-6% Si, 4-6% Mn, 1.25% max. C.

Carloads	27.75
Ton lots	30.05
Less ton lots	31.85

Chromium Metal

Contract prices, per lb chromium contained packed, delivered, ton lots. 97% min. Cr, 1% max. Fe.

0.20% Max. C.	$1.09
0.50% max. C.	1.05
.00 min. C	1.04

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-49%, C 0.05% max.) Contract price, carloads, f.o.b. Niagara Falls, freight allowed; lump 4-in. x down, bulk 2-in. x down, 21.75¢ per lb of contained Cr plus 12.00¢ per lb of contained Si.

Bulk 1-in. x down, 21.90¢ per lb contained Cr plus 12.20¢ per lb contained Si.

Calcium-Silicon

Contract price per lb of alloy, dump delivered.

30-33% Ca, 60-65% Si, 3.00% max. Fe

Carloads	19.00
Ton lots	22.10
Less ton lots	23.60

Calcium-Manganese—Silicon

Contract prices, cents per lb of alloy, lump, delivered.

16-20% Ca, 14-18% Mn, 53-59% Si.

Carloads	20.00
Ton lots	22.30
Less ton lots	23.30

CMSZ

Contract price, cents per pound of alloy, delivered.

Alloy 4: 45-49% Cr, 4-6% Mn, 18-21% Si, 1.25-1.75% Zr, 3.00-4.5% C.

Alloy 5: 50.56% Cr, 4-6% Mn, 13.50-16.00% Si, 0.75 to 1.25% Zr, 3.50-5.00% C

Ton lots	20.75
Less ton lots	22.00

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max St. Louis. V-5: 38-42% Cr, 17-19% Si, 8-11% Mn.

Ton lots	16.50¢
Less ton lots	17.75¢

Graphidox No. 4

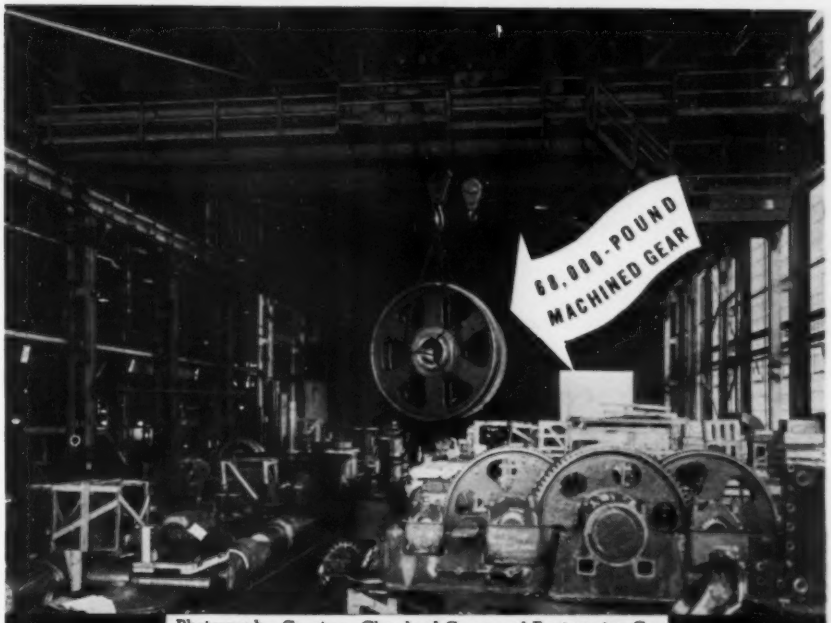
Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed max. St. Louis. Si 48 to 52%, Ti 9 to 11% Ca 5 to 7%.

Carload packed	18.00¢
Ton lots to carload packed	19.00¢
Less ton lots	20.50¢

SMZ

Contract price, cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr 20% Fe, ¼ in. x 12 mesh.

Ton lots	17.25
Less ton lots	18.50

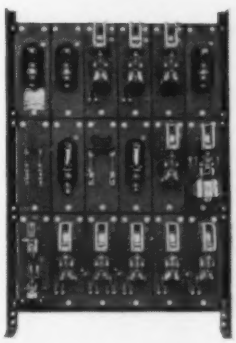


Photograph—Courtesy, Cleveland Crane and Engineering Co.

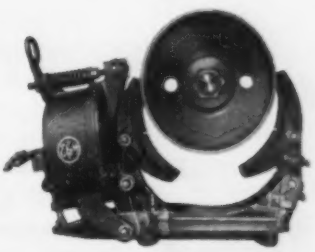
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The EC&M Wright Circuit Controller and the EC&M Type WB Brake are an unequalled combination for D.C. crane-hoists. The Wright Circuit puts all the current from the line on the first point lowering through the coil of the quick responding WB Brake. The result is *fast brake release*—accurate spotting of loads with a minimum number of movements of motor, contactors and brake. Maintenance men recognize this as a contributing factor to reduced up-keep.

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The Wright Circuit Controller for crane-hoists.



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FERROALLOYS

Ferromanganese

78-82% Mn. maximum contract base price, gross ton, lump size.

F.o.b. Birmingham	$174
F.o.b. Niagara Falls, Alloy, W. Va., Welland, Ont., Ashtabula, O.	$185
F.o.b. Johnstown, Pa.	$187
F.o.b. Sheridan, Pa.	$185
F.o.b. Etna, Clairton, Pa.	$175

$2.00 for each 1% above 82% Mn, penalty, $2.15 for each 1% below 78%.

Briquets—Cents per pound of briquet, delivered, 66% contained Mn.

Carload, bulk	10.45
Ton lots	12.05

Spiegeleisen

Contract prices gross ton, lump, f.o.b.

	16-19% Mn 3% max. Si	19-21% Mn 3% max. Si
Palmerton, Pa.	$74.00	$75.00
Pgh. or Chicago	75.00	76.00

Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal, delivered.

96% min. Mn, 0.2% max. C, 1% max. Si, 2% max. Fe.

Carload, packed	29.75
Ton lots	31.25

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.

Carloads	28
Ton lots	30
Less ton lots	32

Medium Carbon Ferromanganese

Mn 80% to 85%, C 1.25 to 1.50. Contract price, carloads, lump, bulk, delivered, per lb. of contained Mn ..... 19.15¢

Low-Carbon Ferromanganese

Contract price, cents per pound Mn contained, lump size, del'd., Mn. 85-90%.

	Carloads	Ton	Less
0.07% max. C, 0.06% P, 90% Mn	26.25	28.10	29.30
0.07% max. C	25.75	27.60	28.80
0.15% max. C	25.25	27.10	28.30
0.30% max. C	24.75	26.60	27.80
0.50% max. C	24.25	26.10	27.30
0.75% max. C, 7.00% max. Si	21.25	23.10	24.30

Silicomanganese

Contract basis, lump size, cents per pound of metal, delivered, 65-68% Mn, 18-20% Si, 1.5% max. C. For 2% max. C, deduct 0.2¢.

Carload bulk	9.90
Ton lots	11.55
Briquet, contract basis carlots, bulk delivered, per lb of briquet	11.15
Ton lots	11.75

Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct, f.o.b. Keokuk, Iowa, or Wenatchee, Wash., $89.50 gross ton, freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., $83.00. Add $1.00 per ton for each additional 0.50% Si up to and including 18%. Add $1.00 for each 0.50% Mn over 1%.

Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, for ton lots packed.

96% Si, 2% Fe	21.70
97% Si, 1% Fe	22.10

Silicon Briquets

Contract price, cents per pound of briquet bulk, delivered, 40% Si, 1 lb Si briquets.

Carload, bulk	6.95
Ton lots	8.55

Electric Ferrosilicon

Contract price, cents per pound contained Si, lump, bulk, carloads, delivered.

25% Si	19.00	75% Si	14.30
50% Si	12.40	85% Si	15.55
90-95% Si			17.50

Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.

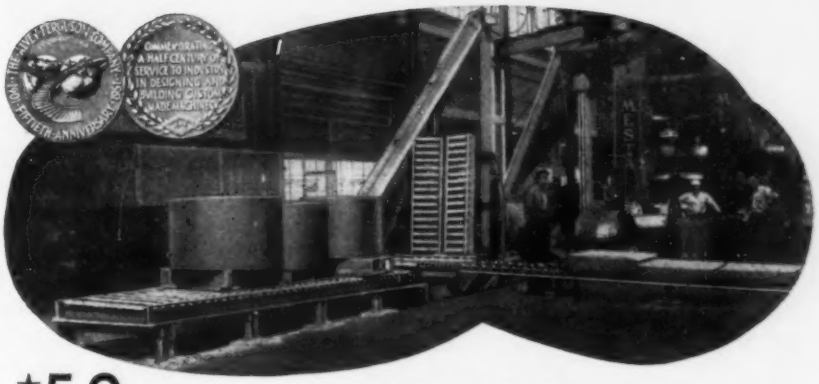
	Cast	Turnings	Distilled
Ton lots	$2.05	$2.95	$3.75
Less ton lots	2.40	3.30	4.55

Other Ferroalloys

Alsifer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.	
Carload	8.15¢
Ton lots	9.55¢
Calcium molybdate, 45-40%, f.o.b. Langeloth, Pa., per pound contained Mo	$1.15
Ferrocolumbium, 50-60%, 2 in x D, contract basis, delivered, per pound contained Cb.	
Ton lots	$4.90
Less ton lots	4.95
Ferro-Tantalum-columbium, 20% Ta, 40% Cb, 0.30 C. Contract basis, delivered, ton lots, 2 in. x D, per lb of contained Cb plus Ta	$3.75
Ferromolybdenum, 55-75%, f.o.b. Langeloth, Pa., per pound contained Mo	$1.32
Ferrophosphorus, electrolytic, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., $3 unitage, per gross ton	$65.00
10 tons to less carload	75.00
Ferrotitanium, 40%, regular grade, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti	$1.30
Ferrotitanium, 25%, low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti	$1.50
Less ton lots	$1.55
Ferrotitanium, 15 to 19%, high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload per net ton	$177.00
Ferrotungsten, standard, lump or ¼ x down, packed, per pound contained W, 5 ton lots, delivered	$3.25
Ferrovanadium, 35-55%, contract basis, delivered, per pound, contained V.	
Openhearth	$3.00-$3.05
Crucible	3.10- 3.15
High speed steel (Primos)	3.25
Molybdic oxide, briquets or cans, per lb contained Mo, f.o.b. Langeloth, Pa.	$1.14
bags, f.o.b. Washington, Pa., Langeloth, Pa.	$1.13
Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per pound	
Carload, bulk lump	14.50¢
Ton lots, bulk lump	15.75¢
Less ton lots, lump	16.25¢
Vanadium pentoxide, 88-92% V_2O_5 contract basis, per pound contained V_2O_5	$1.21
Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy.	
Ton lots	$1.00¢
Zirconium, 12-15%, contract basis, lump, delivered, per lb of alloy.	
Carload, bulk	7.00¢

Boron Agents

Contract prices per lb of alloy, del.	
Borosil, f.o.b. Philo, Ohio, freight allowed, B 3-4%, Si 40-45%, per lb contained B	$5.25
Bortam, f.o.b. Niagara Falls	
Ton lots, per pound	48¢
Less ton lots, per pound	50¢
Carbortam, Ti 15-21%, B 1-2%, Si 2-4%, Al 1-2%, C 4.5-7.5% f.o.b. Suspension Bridge, N. Y., freight allowed.	
Ton lots, per pound	10.00¢
Ferroboron, 17.50% min. B, 1.50% max Si, 0.50% max. Al, 0.50% max. C, 1 in x D. Ton lots	$1.30
F.o.b. Wash., Pa.; 100 lb, up	
10 to 14% B	.75
14 to 19% B	1.20
19% min. B	1.50
Grainal, f.o.b. Bridgeville, Pa., freight allowed, 100 lb and over.	
No. 1	$1.00
No. 6	65¢
No. 79	50¢
Manganese—Boron 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, delivered.	
Ton lots	$1.40
Less ton lots	1.57
Nickel—Boron 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, delivered.	
Less ton lots	$1.80
Silcaz, contract basis, delivered.	
Ton lots	45.00¢



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BEAVER FALLS, PENNA.

NPA Seeks Plan to Curtail Use of Tungsten in Cutting Tools

Washington—The shortage of steel-hardening tungsten has forced NPA to seek measures for curtailment of the material's use in high-speed cutting tool steels. Reasons for the shortage, says NPA, is military stockpiling, jet engine production, and stoppage of Red Chinese exports. (THE IRON AGE, Nov. 30, 1950, p. 85).

NPA appointed an industry group to formulate a plan for tungsten cutbacks and substitution of more plentiful alloys. The NPA's directive will probably lower the content of tungsten in cutting tools from the current 18 pct. In World War II these steels had only a 6 pct tungsten content.

NPA was told by industry spokesmen that production of cutting tools will expand by 20 to 25 pct soon.

Try to Revive Scrap Exports

London—Aimed at boosting declining scrap steel exports to Britain, negotiations, which were held at Bonn and Dusseldorf, will be continued here this month. German scrap exports to Britain dropped from a monthly average of 130,000 tons during the first half of 1950 to 42,000 tons in October and scarcely 40,000 tons in November. At the same time, Britain's share in total German scrap exports dipped from 60 to 45 pct.

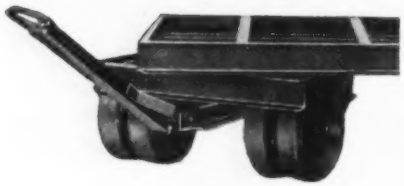
AFS Foundry Practice Lectures

Chicago—The Chicago chapter of the American Foundrymen's Society has scheduled a series of demonstrations on modern foundry practice during the coming year.

The first demonstration, at the People's Gas Auditorium Jan. 8, will illustrate better quality control through the laboratory. Later demonstrations will include modern molding, core-making and gating methods, improved foundry safety, defective castings and what to do about them.



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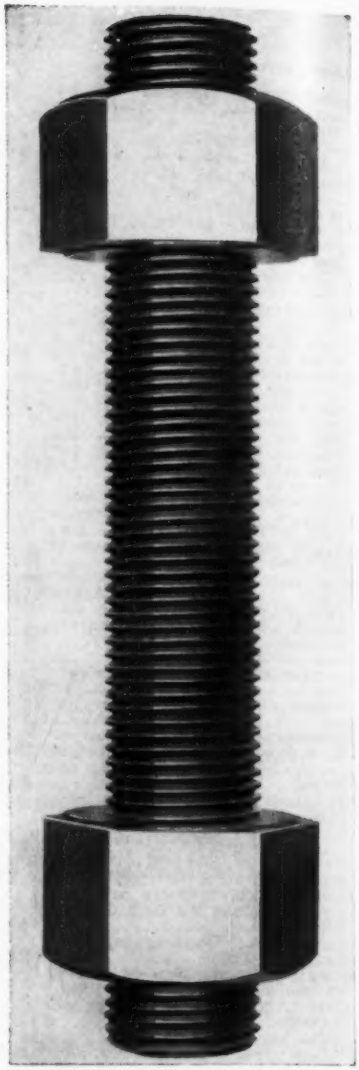
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REPRESENTATION IN PRINCIPAL CITIES

J&L Has Sales Force Shakeup; Timberlake Named Sales Manager

Pittsburgh — A major shakeup in the sales force of Jones & Laughlin Steel Corp. was announced by A. J. Hazlett, vice-president in charge of sales, effective Jan. 1.

J. E. Timberlake, assistant general manager of sales, was named general manager of sales; H. E. Robinson, manager of strip and sheet sales, appointed assistant general manager of sales; C. M. Merritt, district sales manager, Detroit, appointed assistant general manager of sales; L. T. Willison, manager of cold-finished sales, appointed manager of strip and sheet sales; H. M. Knobloch, district sales manager, Indianapolis, appointed manager of cold-finished sales; L. C. Berkey, district sales manager, Chicago, appointed district sales manager, Detroit; I. A. Mlodoch, Chicago salesman, appointed district sales manager, Chicago; G. G. Marshall, assistant district sales manager, Buffalo, appointed district sales manager, Indianapolis; R. M. Laning, Detroit salesman, appointed assistant district sales manager, Detroit.

Hotpoint Sets Safety Record

Chicago—Hotpoint, Inc., manufacturers of kitchen and laundry appliances, finished the month of October, operating at full capacity without a single lost-time accident. The credit for this was attributed by William A. Kissock, vice-president in charge of industrial relations, to plant superintendent, foremen, supervisors, and the workers themselves.

B. & O. Uses Strata-Dome Cars

Baltimore — Three strata-dome sleeping cars built by Budd Co. were placed in service by the Baltimore & Ohio R. R. this week. The new cars, first to be used in the East, have glass domes and 24 upper level seats. On the lower level each car has five roomettes, one single bedroom, and three drawing rooms.

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Improve your storage methods, speed order filling, eliminate dangerous and costly "stock-falls." Select from 12 models plus standard and specially designed accessories for handling loads from 1500 to 15,000 lbs.—a Towmotor for *every* job. And learn how skilled Towmotor Preventive Maintenance keeps your equipment *on* the job—mail coupon below. Representatives in all Principal Cities in U. S. and Canada.

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April 30—May 4

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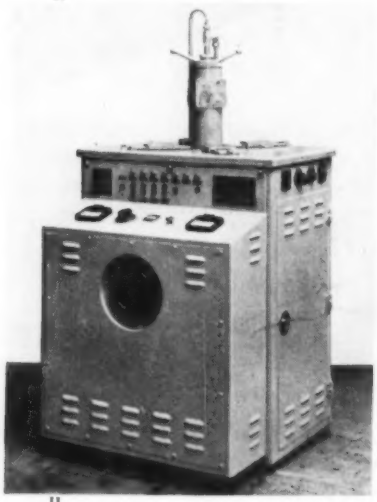
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CROSSING THE DELAWARE: Wire being spun into suspension cables for the $40 million Delaware Memorial Bridge by U. S. Steel's American Bridge Co. After completion in 1951, the 2-mile span will carry 4 million vehicles yearly, and will supplant ferry service between Pennsville, N. J., and New Castle, Del.

Uranium Out of Gold Mines

London—Uranium from South African gold mines will go to Britain and America. The problem has been to discover a sound method of extracting the material from the mines but the South African Dept. of Mines reported that the pilot plant stage has been reached.

Uranium is to be found in nearly all the gold mines of the Witwatersand and in the new gold field of the Orange Free State.

War and U.S. Utilities

New York—How will American utilities continue to function in the event of military attack, will be the subject of a panel discussion to be held at the winter meeting of the American Institute of Electrical Engineers, Jan. 22 to 26 at the Hotel Statler, here.

Britain Faces Zinc Shortage

London—Failure of a large zinc shipment to arrive from Belgium has forced the British to institute an allocation system for zinc on Jan. 1. The government is taking action to acquire zinc but a serious shortage is expected for at least the first half of the year.